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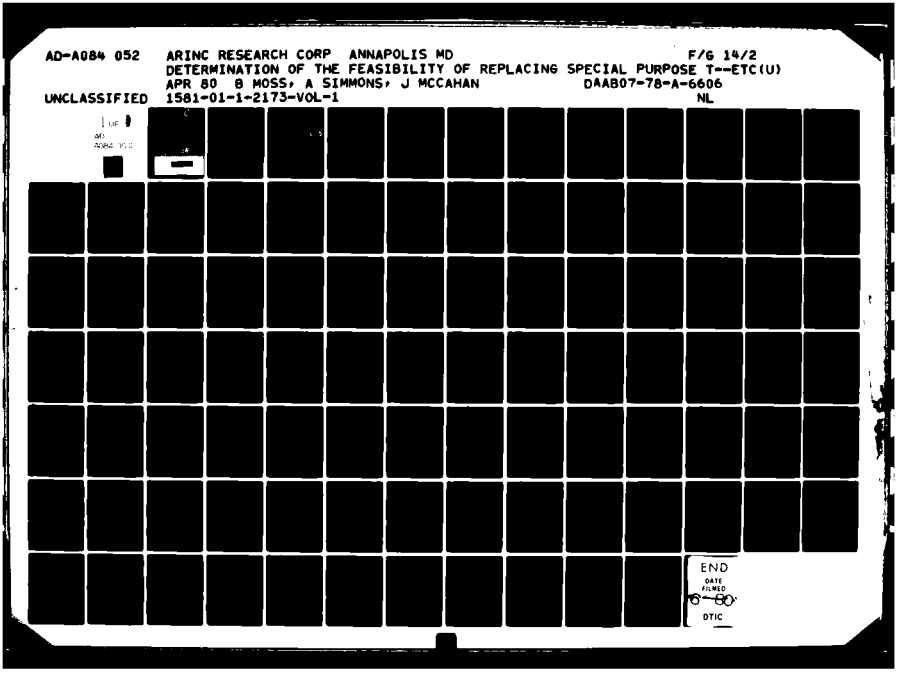

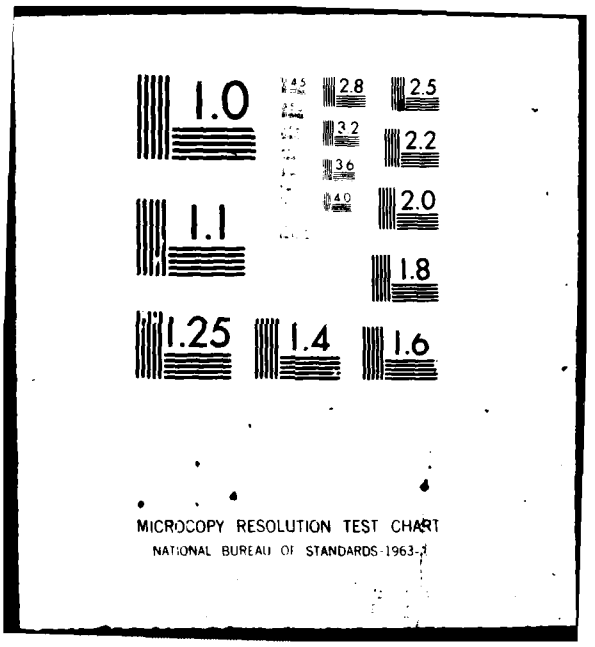
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FINAL REPORT
DETERMINATION OF THE FEASIBILITY OF REPLACING SPECIAL PURPOSE TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT WITH OFF-THE-SHELF ELECTRONIC TEST EQUIPMENT

VOLUME I

April 1980

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Prepared for
SPECIAL EQUIPMENT SUPORT DIVISION
OF THE
DIRECTORATE OF MAINTENANCE ENGINEERING
U.S. ARMY COMMUNICATIONS AND ELECTRONICS MATERIEL
READINESS COMMAND (CERCOM)
FT. MONMOUTH, NEW JERSEY 07703
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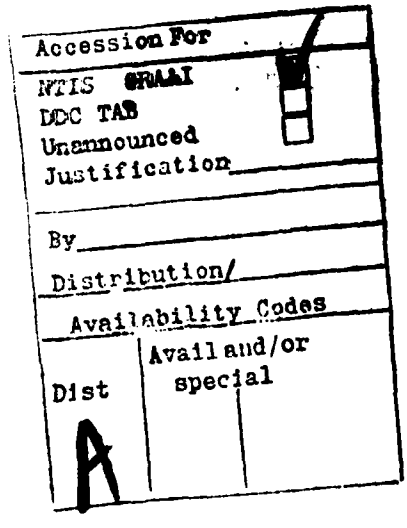
FOREWORD

Under contract to the U.S. Army Communications and Electronics Materiel Readiness Command (CERCOM), ARINC Research Corporation determined the feasibility of replacing special purpose (SP) test, measurement, and diagnostic equipment (TMDE) with off-the-shelf (OTS) electronic test equipment (ETE) [or general purpose (GP) TMDE].

The work was performed under Contract DAAB07-78-A-6606, Delivery Order BG-03, a basic ordering agreement. The period of performance was 1 June 1979 to 28 April 1980.

ARINC Research Corporation gratefully acknowledges the invaluable assistance of Messrs. Vincent G. Calfapietra and Richard Pribyl of the Special Equipment Support Division, Directorate of Maintenance Engineering, CERCOM. We are also grateful to Messrs. Eli J. Dworkin and James A. Carter, of the same Directorate, for their interest and guidance during the study.



ABSTRACT

This report describes the results of a contract effort to determine the feasibility of replacing special purpose TMDE with off-the-shelf electronic test equipment, i.e., general purpose TMDE. The results are based on a review of more than 1,000 special purpose (SP) TMDE listed in the DA TMDE Register (DA PAM 700-20/21) and a detailed review and analysis of 20 selected SP TMDE and the end systems they support.

The contract under which the work was performed is one of a group of contracts related to the CERCOM TMDE standardization effort.

SUMMARY

The work reported on herein was performed under a contract that is one of a group related to the CERCOM TMDE standardization effort. It was specifically directed toward determining the feasibility of substituting off-the-shelf electronic test equipment (general purpose TMDE) for special purpose TMDE. The study consisted of five interrelated tasks:

- Identify Special Purpose (SP) TMDE Assets
- Update General Purpose (GP) TMDE Data Base
- Determine Test Capabilities of Selected SP TMDE
- Identify Common and Unique Test Requirements
- Determine Best Mix of Off-The-Shelf Electronic Test Equipment (OTS ETE) for Each Selected SP TMDE

The results are based on detailed examination of the technical performance characteristics of 20 SP TMDE selected from more than 1,000 items previously categorized as SP TMDE.

The conclusions reached are as follows:

- A significant portion of the present inventory of SP TMDE could be replaced by a prudent selection of GP TMDE based on the 20 SP TMDE.
- The use of groups of multipurpose GP TMDE in place of SP TMDE could result in significant cost savings (or avoidance).

The following actions are recommended:

- Remove identified SP TMDE from inventory at the direct support/general support/depot (DS/GS/D) levels and return to stock for issuance to 0-level requirements, and replace these items at DS/GS/D levels with functionally equivalent GP TMDE.
- Update Maintenance Allocation Charts (MACs) to reflect present equipment requirements.
- Study additional selected SP TMDE to further substantiate the conclusions reached and to expand the list of items that can be replaced by GP TMDE.

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CONTENTS (continued)

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Through the years, the U.S. Army has acquired an enormous inventory of special purpose (SP) test, measurement, and diagnostic equipment (TMDE). SP TMDE is defined in MIL-STD-1309B as follows:

> Special Purpose Test Equipment. Equipment used for test, repair and maintenance of a specified system, subsystem or module, having application to only one or a limited number of systems.

For comparison purposes, the definition of general purpose (GP) TMDE as presented in MIL-STD-1309B is also shown:

> General Purpose Test Equipment. Test equipment which is used for the measurement of a range of parameters common to two or more equipments or systems of basically different design.

The procurement of SP TMDE over the past several years has broadened to include various makes and models that typically can be used with only one Communications-Electronics (C-E) end item or system. Currently, this expanded inventory includes SP TMDE with overlapping or redundant capabilities, resulting in increased logistics costs. Further, the procurement and reprocurement costs of SP TMDE are often excessive because of the one-time development and production setup costs associated with their procurement and the typical low densities of each type acquired over which these costs are amortized.

SP TMDE usually represents a composite of GP TMDE capabilities that can be combined for convenience into a single configuration for testing a specific C-E end item. The stimuli and measurement capabilities of the SP TMDE are usually limited to those specifically required to support the designated end item. These limitations, which may be cost-effective in the support of a given weapon system, often prevent using the TMDE in support of other C-E systems. Significant cost benefits might be realized if GP TMDE could be identified that satisfy most SP TMDE applications, particularly at the higher levels of maintenance. In addition, surveys of the off-the-shelf (OTS) electronic test equipment (ETE) market indicate that

some commercial manufacturers offer products that consist of various combinations of GP TMDE, e.g., a spectrum analyzer, signal generator, and power meter combined into a radio or radar test set. These OTS combination sets could potentially replace several SP TMDE now in the Army's inventory.

In 1976 ARINC Research initiated a project for the U.S. Army Communications and Electronics Materiel Readiness Command (CERCOM) to perform an engineering analysis and determination of U.S. Army TMDE requirements. This project was part of an overall Army program to standardize TMDE and to minimize the number of GP items. The study was directed toward preparing specifications to facilitate the competitive procurement of GP OTS ETE and resulted in the development of 98 Military (OTS ETE) Specifications. However, hundreds of TMDE were specifically excluded from consideration in that study because they were defined as SP TMDE. There is now a need to address those excluded SP TMDE as well as new SP TMDE added to the Department of the Army (DA) TMDE Register since 1976. It is also necessary to update the GP TMDE data base developed in 1976 to include new GP TMDE added to the DA TMDE Register since that time. This update will assist CERCOM in developing detailed economic analyses to support the replacement of the existing Army GP TMDE inventory with OTS ETE.

To address SP TMDE and update the GP TMDE data base, ARINC Research Corporation was tasked, under Contract DAAB07-78-A-6606, Delivery Order BG-03, to perform an engineering analysis of SP TMDE to determine the feasibility of replacing SP TMDE with OTS ETE or appropriate GP TMDE and to update the existing GP TMDE data base.

1.2 OBJECTIVE

The overall objective of the study is to determine the feasibility of replacing SP TMDE with OTS ETE. Specific project objectives are as follows:

- Identify and describe U.S. Army SP TMDE assets
- Update GP TMDE data base
- Determine capabilities of and requirements for selected SP TMDE
- Identify common and unique test requirements
- Determine the best mix of OTS ETE for each selected item of SP TMDE

1.3 OVERVIEW OF WORK PERFORMED

Achievement of the study objectives required a series of interrelated tasks.

In Task 1 the SP TMDE assets of the U.S. Army, as reflected in DA PAM 700-21/20, were identified and categorized into SP TMDE families. The individual technical characteristics of each SP TMDE item were then encoded for subsequent display and analysis in computer printouts. As a result of the analysis, a composite of technical characteristics for each SP TMDE family was developed.

In Task 2 the ARINC Research GP TMDE data base developed under Contract DAEA18-72-A-0005/0007 was updated to include all GP TMDE listed in the current DA TMDE Register. This update added items that were "new" since the last update and deleted items that were no longer in the Register. The final step in this task was to update the TMDE Cross-Reference List (TCRL), developed under the same contract, to include the newly added GP TMDE.

In Task 3, 20 items of SP TMDE were selected for detailed analysis during the remainder of the study. The technical characteristics as described in their respective technical manuals were encoded for each of the selected items, and the test and measurement requirements of the end items they supported were reviewed. In parallel with this analysis, a field survey was conducted to confirm the selected SP TMDE application, test procedures, and needs.

During Task 4, test requirements and capabilities of all items of SP TMDE and the end items they supported were examined to determine which were common and which were unique. Common requirements are defined as those common to many types and classes of equipment. Unique requirements are defined as peculiar or specific to one type or class of equipment. For each *common* test requirement or capability, a Military (OTS ETE) Specification and a U.S. Army Preferred Items List (PIL) TMDE that met or exceeded the testing need were identified. For each *unique* test requirement or capability, we planned to examine up to five OTS ETE that met or exceeded the test needs. The characteristics of these OTS ETE were to be encoded for subsequent analysis. However, we were unable to identify a large enough quantity of such OTS ETE to permit a comparison and therefore terminated this phase of the effort. Finally, during Task 4, we were to make a separate evaluation of the field environment in which the selected SP TMDE is employed to determine the conditions under which the OTS ETE must operate.

In Task 5 the best mix of OTS ETE that met both the common and unique test requirements and capabilities for all selected SP TMDE and their respective supported end items was determined by identifying PIL items of GP TMDE whose performance characteristics were at least as good as those of the SP TMDE. In addition, the technical characteristics of the other SP TMDE (encoded during Task 1) were reviewed to determine the potential for any additional SP TMDE replacements.

Task 6 was the preparation of this final report, which presents the results of each of the previous tasks and the conclusions and recommendations of the study.

1.4 REPORT ORGANIZATION

Chapter Two describes the study approach, Chapter Three presents the results, and Chapter Four provides the conclusions and recommendations. Appendixes A through F present supporting details.

Because of their bulk, two appendixes are published separately in Volume II of this report:

- Appendix C - U.S. Army Special Purpose TMDE Parameters
- Appendix D - Definition of Special Purpose Specficactions

CHAPTER TWO

TECHNICAL APPROACH

The technical approach used to meet the project objectives consisted of the following tasks:

Task 1: Identify and Describe SP TMDE Assets

Task 2: Update GP TMDE Data Base

Task 3: Determine Selected SP TMDE Test Capabilities

Task 4: Identify Common and Unique Test Requirements

Task 5: Determine Best Mix of OTS ETE for Each Selected SP TMDE

Task 6: Prepare Final Report

2.1 TASK 1: IDENTIFY AND DESCRIBE ARMY SP TMDE ASSETS

The Army's present inventory of SP TMDE was identified, and descriptive and key technical characteristics were encoded for subsequent display and analysis in computer printouts. These data were derived from SB 700-20, DA PAM 700-20/21, appropriate technical manuals (see Appendix A for list of publications), and the computer printouts and listings developed under Contract DAEA18-72-A-0005/0007. These latter listings contain brief descriptive data related to the SP TMDE that were excluded from the GP TMDE study previously mentioned. The following list presents the data elements that were encoded for each SP TMDE, where these data were available in the data sources described above:

- Joint Electronic Type Designator (JETD)
- Manufacturer's Model Number and FSCM (Federal Supply Code for Manufacturers)
- Nomenclature
- National Stock Number (NSN)
- Line Item Number (LIN)
- Technical Characteristics as Listed in DA PAM 700-20/21
- C-E End Item Supported
- SP TMDE Technical Manual Number (Operator Manual)

In addition to these data elements, each SP TMDE was assigned an SP TMDE family code to facilitate grouping and analysis of similar SP TMDE. The family code consists of three numerical characters, with each code depicting a specific type of SP TMDE (e.g., 039 Power Meter, AC, 311 Radio System Test Set). These family codes were originally developed as part of an earlier effort (DAEA18-72-A-0005/0007) that categorized SP TMDE as Family Code 200. While the sequence is arbitrary, it permits assembly of like TMDE by computer. The original list had some unassigned blocks of numbers (3XX, 5XX), and those were arbitrarily assigned to newly identified SP TMDE families. The SP TMDE family codes are listed in Appendix B.

To complete Task 1, a composite of technical characteristics of each family of SP TMDE was extracted, encoded, and displayed in a computer printout. The composite reflects the maximum and minimum values of each technical parameter encoded, e.g., frequency range of 10 MHz to 1.6 GHz, bandwidth of 3 kHz to 150 MHz.

To reduce project cost and period of performance, the computer input (card types) and output (computer printouts and listings) transactions developed under Contracts DAEA18-72-A-0005/0007 and BG-02 were used to encode and display data related to this study. Minor modifications were introduced as required. The data base structure is described in detail in ARINC Research Publication 1076-01-1-1693, dated December 1977, *Establish Project Data Base Structure for the Definitization of Specifications for Families of Off-The-Shelf (OTS) Electronic Test Equipment* (provided to CERCOM under Contract DAEA18-72-A-0005, Delivery Order BG-02).

2.2 TASK 2: UPDATE GP TMDE DATA BASE

The GP TMDE data base* developed under Contract DAEA18-72-A-0005/0007 was updated to reflect those GP TMDE which were added to the DA TMDE Register since June 1976. This update was accomplished by comparing the existing data files with the current DA TMDE Register (April 1979) and encoding the new TMDE listed in the Register by appropriate identification data for inclusion in the data base. Further, all TMDE listed in the data base that did not have a corresponding entry in the Register were assigned a Family Code of "999" (999 = NOT LISTED DA PAM 700-20/21). The technical parameters shown in the Register were then reviewed and, where applicable, one or more of the 98 Military (OTS ETE) Specifications were designated as potential replacements. The results of the review were then encoded and the TMDE Cross Reference List (TCRL) updated to reflect the newly added GP TMDE.

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*While frequency counters and oscilloscopes are included in the GP TMDE data base, they were not included in the TCRL because none of the 98 Military (OTS ETE) Specifications represent these families of TMDE.

2.3 TASK 3: DETERMINE SELECTED SP TMDE TEST CAPABILITIES AND REQUIREMENTS

Task 3 was initiated with the selection of a number of SP TMDE for study. The following criteria were used in the selection:

- SP TMDE must be Standard A (listed in SB 700-20).
- The technical manuals for the selected SP TMDE and the specific end item they support, if applicable, must be listed in TM 11-5800-213-L.
- Each selected SP TMDE will be primarily an electronic test set rather than an electromechanical test set.
- The latest model in the SP TMDE or end item series will be selected, if publications are available.
- Neither the selected SP TMDE nor their respective supported end items should be a classified system, since this might preclude an analysis of the various test requirements.

Of the many items that satisfy these criteria, 20 were selected arbitrarily to include as many family codes as possible. The selected SP TMDE were used to determine the feasibility of replacing SP TMDE with OTS ETE and therefore formed the basis for a detailed review and analysis during the remainder of the study. Technical source data for SP TMDE and their respective supported end items are listed in Appendix A.

Following the selection process, the detailed technical parameters (as described in their respective technical manuals) for each selected item of SP TMDE were encoded for subsequent listing in various computer printouts. These printouts facilitated the analyses of Task 3 and all subsequent tasks, e.g., in determining the existence of similar or overlapping test capabilities, total test capability, and alternate test methods.

The C-E end item supported by each selected item of SP TMDE was evaluated to determine the requirements of the tests to be performed by the SP TMDE, the maintenance level at which these tests are performed, and the results expected from each test. The C-E end item technical manuals are the designated source documents for this analysis and are listed in Appendix A. A survey was conducted through CERCOM field representatives (Logistics Assistance Offices) to confirm the selected SP TMDE's field application and test procedures. For this survey, a questionnaire was devised (see Figure 2-1).

2.4 TASK 4: IDENTIFY COMMON AND UNIQUE TEST REQUIREMENTS

Using the results of Task 3, we examined each test requirement for each separate SP TMDE to determine which are common (i.e., could be met by an item of GP TMDE) and which are unique to the C-E end item. For each common test requirement, we identified Military (OTS ETE) Specifications

Type Designator _____ Nomenclature _____

End Item Supported _____

Do you use the item indicated for the purpose intended?

☐	☐	☐	☐
More than 85% of the time	50 to 85% of the time	15 to 50% of the time	Less than 15% of the time

If not more than 85% of the time, why not?

Explain _____

_____

_____

What do you use?

List items _____ _____

_____ _____

_____ _____

Would you prefer using GP TMDE instead of SP TMDE?

Explain _____

_____

_____

What test procedures do you follow?

Identify TM and paragraph no. _____

_____

(continued)

Figure 2-1. SP TMDE QUESTIONNAIRE

What level of maintenance does each test represent?

Operator/Crew	☐	General Support	☐
Organizational	☐	Depot	☐
Direct Support	☐		

Are any supplemental items of TMDE used other than those shown in the TM?

List _____ _____

_____ _____

_____ _____

If the designated SP TMDE is unavailable (NORM, calibration, etc.), could you perform the required test with GP TMDE?

Yes ☐ No ☐

Explain _____

_____

_____

What are the environmental conditions under which the TMDE is used?

Fixed (Sheltered) ☐

Field (Exposed) ☐

Figure 2-1. (continued)

that met the test requirement. Where applicable, we also identified a TMDE item in the U.S. Army Preferred Items List (PIL) that met the test requirement.

For each C-E end item with unique test requirements that must be satisfied by the SP TMDE as designed, it was planned to identify up to five OTS ETE that met or exceeded those requirements. In this way the availability or nonavailability of existing OTS ETE that could satisfy the unique test requirements would be determined. However, very few specific items could be identified, and this portion of the effort was terminated.

In Task 4 a separate evaluation was to be made of the field environment in which the selected SP TMDE or replacement OTS ETE must function. This evaluation required review of the respective C-E end item technical manuals and, particularly the Maintenance Allocations Charts (MAC), to determine whether the OTS ETE is a suitable replacement for the SP TMDE, given the expected operational employment conditions in which it must perform. It was also planned to examine the differences between the SP TMDE and the potential replacement OTS ETE to determine relative ease of field operations for the field user or for a fixed site environment. A questionnaire was prepared for distribution to the Logistics Assistance Offices so that the field data needed for the evaluation could be obtained. Unfortunately, data were not received in response to the questionnaires in time for inclusion in this report. Should these data be received later, CERCOM can readily extract data pertinent to the TMDE usage and field environment.

Those SP TMDE which are considered not to be replaceable by OTS ETE (e.g., special test harnesses designed specifically for use with a particular C-E end item) were excluded from Task 5.

2.5 TASK 5: DETERMINE BEST MIX OF OTS ETE FOR EACH SELECTED SP TMDE

For each of the applicable SP TMDE, the best mix of OTS ETE that met common test requirements of the C-E end item supported was determined. Every effort was made to select items of OTS ETE that could perform the required functions by themselves, with "add ons" that would, for example, extend range and broaden capability, as necessary. If there were available several items of OTS ETE (GP TMDE) that could provide the functions required, only one of which was on the PIL, the item selected was the PIL item.

2.6 TASK 6: PREPARE FINAL REPORT

This final report was prepared to present the scope, objectives, technical approach, results, and conclusions and recommendations of the study.

CHAPTER THREE

STUDY RESULTS

This chapter presents the results of a study effort to determine the feasibility of replacing SP TMDE with OTS ETE.

3.1 TASK 1: IDENTIFY AND DESCRIBE ARMY SP TMDE ASSETS

Initially, 1,044 items of U.S. Army SP TMDE were identified as Family Code 200 and had been excluded from the earlier study of GP TMDE. These SP TMDE were assigned to family codes other than 200 in accordance with their usage and technical characteristics. Of these intial items, 593 were assigned to newly established family codes. The number in each of these families is shown in Table 3-1*. The remaining 451 TMDE were placed in other TMDE families that were excluded from this study (e.g., hydraulic, electromechanical) or were classified as GP TMDE. These SP TMDE family codes are presented in Appendix B, and the performance parameters are listed in Appendix C. Appendix D definitizes the SP specifications for each SP TMDE family and facilitates the comparison of technical parameters between U.S. Army SP TMDE within that family. Appendix E lists the composite SP specification parameters for each SP TMDE family.

3.2 TASK 2: UPDATE GP TMDE DATA BASE

The results of Task 2 were transmitted to CERCOM via a letter report, with the following updated listings as attachments:

- Alphanumeric listing by type designator
- Alphanumeric listing by manufacturer's model number
- Alphanumeric listing by family code
- Part I TMDE Cross-Reference List
- Part II TMDE Cross-Reference List

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*Because of their length, the tables and the figure are presented at the end of this chapter.

3.3 TASK 3: DETERMINE SELECTED SP TMDE TEST CAPABILITIES AND REQUIREMENTS

The SP TMDE listed in Table 3-2 were selected to determine the feasibility of replacing SP TMDE with OTS ETE. Appendix D contains the detailed technical parameters of each selected SP TMDE. Appendix E presents the specification parameters of the selected SP TMDE. Appendix F lists the selected SP TMDE in the following sequences: Type Designator Sequence, SP TMDE Family Code Sequence, LIN Sequence, and End Item(s) Supported Sequence. Examination of the test capabilities (from SP TMDE technical manuals) and test requirements (from C-E end item technical manuals) disclosed that there were some MACs in which the SP TMDE item was not identified. The requirement for such SP TMDE is developed by reference (in the SP TMDE technical manual) to the C-E end item it is intended to support.

3.4 TASK 4: IDENTIFY COMMON AND UNIQUE TEST REQUIREMENTS

The test requirements (determined from the technical manuals for the supported end items) and the test capabilities (determined from the technical manuals for the SP TMDE) were examined for the specific purpose of identifying common and unique test requirements. As previously stated, common requirements have been defined as those which are common to many types and classes of equipment. For example, measurements of transmitter output frequency or power are common to all transmitters. The determination of pulse train coding, however, may be unique to transponder test sets and require special (or unique) test equipment or test techniques. The special (or unique) modulation techniques utilized in navigational systems (e.g., VOR, LOC, ILS) would qualify those test requirements as unique.

The results of Task 4 are presented in Figure 3-1, which provides test description, purpose, and maintenance level at which the test is performed for each of the SP TMDE items listed in Table 3-2. From the specifications prepared for OTS ETE under Contract DAAB07-78-A-6606/BG-0001, specifications were selected whose requirements were at least as demanding as the test requirements of the end item supported by the SP TMDE. In addition, U.S. Army PIL TMDE were selected that provided the same functional capabilities as the SP TMDE, also shown in Figure 3-1.

After establishing the existence of an item of GP TMDE that is functionally equivalent to the identified SP TMDE, we judged that the GP TMDE could replace the SP TMDE in question. However, we considered SP TMDE, when designated for use at the O-level, to have such features as convenience (usually no need to set stimuli or interpret responses -- go/no-go indications), simplicity (no mistake in application since use is limited to one specific end item), and ruggedness (usually designed for field environment rather than fixed or sheltered environment). At higher maintenance levels, there is usually an adequate supply of GP TMDE (e.g., multimeters, frequency counters, signal generators) already available at the facility as defined in its TDA. This GP TMDE could replace the SP TMDE, releasing it for return to stock for issue against O-level requirements. Of course, if there is no GP TMDE functional equivalent, no substitution is possible and the SP TMDE must be retained at all levels. Table 3-3 summarizes the recommendations for each of the items of SP TMDE.

A planned part of Task 4 was the evaluation of the questionnaires returned from the Logistics Assistance Offices (LAOs). As pointed out earlier, no data were returned from the LAOs; therefore, no results have been summarized.

3.5 TASK 5: DETERMINE BEST MIX OF OTS ETE FOR EACH SELECTED SP TMDE

U.S. Army PIL TMDE that provided the test capabilities required were selected. This selection results in the smallest number of types of equipment for the maximum range of measurements. In performing various tests at DS/GS/D maintenance levels, it would be desirable to have the most versatile TMDE available to minimize the numbers of equipments required and the investment. The best mix was determined, therefore, by selecting those TMDE which met a given set of performance requirements and, with appropriate relatively low-cost accessories, could extend their range to include several additional sets of requirements. The selected best mix for the various measurements is presented in Table 3-4, which also shows the SP TMDE that would be replaced by the GP TMDE.

For the 20 selected SP TMDE studied, the usage distribution is as follows:

- Five for organizational maintenance, exclusively
- Seven for higher-level (DS/GS/D) maintenance use only
- Eight for use at all levels

It is recommended that all of the five used at the organizational level only be retained in inventory for simplicity, convenience, and ruggedness at the O-level maintenance operation. These items of TMDE are intended for use in system performance verification; troubleshooting; and failure sectionalization, localization, and isolation. Of the eight used at all levels, five could be replaced by GP TMDE (one of these is used at the O-level; all five are used at higher levels). The other three used at higher levels must be retained because functionally equivalent GP TMDE do not exist. Of the seven used only at the higher levels, four must be retained in inventory because functionally equivalent GP TMDE do not exist. The other three can be replaced. In summary, of the thirteen SP TMDE used at the O-level, twelve must be retained and one can be replaced by GP TMDE. Of the fifteen SP TMDE used at DS/GS/D levels, seven must be retained and eight can be replaced by GP TMDE. Of the seven SP TMDE that must be retained at higher-level maintenance, one is a precision holding fixture and one is a dedicated test harness. The remaining five could conceivably be replaced by assorted GP TMDE that are semi-permanently wired together, with existing or added controls preset to the desired values. These arrangements would undoubtedly bear a striking resemblance to the SP TMDE being replaced but would not offer the convenience of the SP TMDE.

Table 3-1. POPULATION OF SP TMDE FAMILIES

Family Code	Nomenclature	Quantity
007	BATTERY TEST SET	19
039	POWER METER AC	5
046	SIGNAL GENERATOR COMB	2
048	SIGNAL GENERATOR TWO-TONE	2
058	SIGNAL GENERATOR VARIABLE PHASE	1
64	STRIP CHART RECORDER	16
083	WORD GENERATOR	6
115	RELAY TEST SET	18
123	POWER SUPPLY TEST SET	17
124	ENGINE ANALYZER	12
311	RADAR SYSTEM TEST SET	47
312	RADAR TRANSMITTER TEST SET	4
313	RADAR RECEIVER TEST SET	12
314	RADAR ANTENNA TEST SET	4
315	RADAR SIGNAL PROCESSOR TEST SET	10
317	RADAR DISPLAY TEST SET	6
318	TRANSPONDER TEST SET	21
321	RADIO COMMUNICATION SYSTEM TEST SET	65
322	RADIO COMMUNICATION TRANSMITTER TEST SET	14
323	RADIO COMMUNICATION RECEIVER TEST SET	13
324	RADIO COMMUNICATION ANTENNA TEST SET	5
325	RADIO COMMUNICATION MODEM/CODEC TEST SET	5
331	RADIO NAVIGATION SYSTEM TEST SET	15
332	RADIO NAVIGATION TRANSMITTER TEST SET	2
333	RADIO NAVIGATION RECEIVER TEST SET	18
334	RADIO NAVIGATION ANTENNA TEST SET	3
337	RADIO NAVIGATION DISPLAY TEST SET	2
340	SUBASSEMBLY TEST SET	15
341	CRYSTAL TEST SET	8

(continued)

Table 3-1. (continued)

Family Code	Nomenclature	Quantity
360	OPTICAL TEST SET	33
361	PHOTOGRAPHIC TEST SET	22
362	INFRARED TEST SET	13
381	WEAPONS MISSILE TEST SET	24
382	WEAPONS CONVENTIONAL TEST SET	16
383	WEAPONS NUCLEAR	12
384	CONCEALED PERSONNEL TEST SET	3
390	SIGNAL SIMULATORS TEST SET	3
391	AUDIO OUTPUT TEST SET	6
511	NAVIGATION INERTIAL SYSTEM TEST SET	4
512	NAVIGATION INERTIAL SENSOR TEST SET	11
513	NAVIGATION INERTIAL COMPUTER TEST SET	6
514	NAVIGATION INERTIAL DISPLAY TEST SET	3
515	NAVIGATION INERTIAL SERVO TEST SET	10
521	NAVIGATION RADAR SYSTEM TEST SET	4
522	NAVIGATION RADAR TRANSMITTER/RECEIVER TEST SET	2
523	NAVIGATION RADAR SIGNAL PROCESSOR	1
541	AUTOPILOT/STABILIZATION SYSTEM TEST SET	19
542	AUTOPILOT/STABILIZATION SENSOR TEST SET	12
543	AUTOPILOT/STABILIZATION COMPUTER TEST SET	5
544	AUTOPILOT/STABILIZATION ACTUATOR TEST SET	2
560	TELEPHONE TEST SET	15

Table 3-2. LIST OF SELECTED SPECIAL PURPOSE TMDE INCLUDED IN STUDY

Special Purpose TMDE*				End Item(s) Supported by Type Designator or Equipment Category
Type Designator	Nomenclature	Line Item Number**	Family Code†	
AN/AAM-36	TEST SET, OPTICAL ALIGNMENT	V82238	360	AN/AAS-24
AN/APM-123(V)3	TEST SET, TRANSPONDER	V99347	318	AN/APX-44
AN/ARM-5A	TEST SET, RADIO	V86383	333	VHF NAV RECR
AN/ARM-45A	TEST SET, RADIO	V86784	321	AN/ARC-73
AN/ARM-92B	TEST SET, RADIO	V90287	332	AN/ARN-82A
AN/ARM-93	TEST SET, DIRECTION FINDER SET	V73847	331	AN/ARN-83
AN/ARM-94	TEST SET, TRANSMITTER	V99295	322	AN/ART-41A
AN/ARM-109	TEST SET, ANTENNA COUPLER	V63589	324	CU-1658/A
AN/ASM-80A	ANALYZER FLIGHT	A55704	541	AN/ASW-12
AN/ASM-113	SIMULATOR, NAVIGATIONAL SIGNAL	T56676	513	AN/ASN-33
AN/ASM-299	TEST SET, ATTITUDE HEADING REFERENCE SET	V81485	521	AN/ASN-76
AN/ASM-330	TEST SET, FLIGHT CONTROL SET	V69841	541	AN/ASW-29
AN/FCM-5B	TEST SET, TELEPHONE	V94192	560	TELEPHONE SYSTEMS
AN/GPM-46A	TEST SET, RADAR	V83917	311	AN/APS-94B & C
AN/GRM-33C	TEST SET, RADIO	V87547	321	SSB RADIOS
AN/GRM-55C	TEST SET, ELEC CKT PI UNIT	V76519	340	RT-505
AN/UPM-33A	TEST SET, RADAR	V84328	311	RADAR SYSTEMS
AN/URM-157A	TEST HARNESS, RADIO SET	V62066	321	AN/ARC-102
TS-147D/UP	TEST SET, RADAR	V85150	311	RADAR SYSTEMS
TS-538C/U	GENERATOR, SIGNAL	V88438	322	RADIOSONDE XMTR

*See Appendix F for various sequential listings.
**All SP TMDE listed are Logistic Control Code A.
†See Appendix B for description of SP TMDE Family Codes.

Table 3-3. RETAIN OR REPLACE RECOMMENDATIONS FOR RETENTION AND REPLACEMENT

Selected SP TMDE Included in Study					Army GP TMDE *Functional Equivalent*		Recommendation (Retain or Replace) (SP TMDE)	
Type Designator	DA PIL Item	Maintenance Level at Which Used		Measurements Performed	Type Designator	DA PIL Item		
		O	DS/GS/D				O-Level	DS/GS/D Level
AN/AAM-36	Yes		X	Optical	None			Retain
AN/APM-123	Yes	X	X	Frequency	CP772A/U, PL1320/U	Yes	Retain	Replace
				Receiver sensitivity	AN/URM-64A-1	Yes	Retain	Replace
				Transmitter power	AN/USM-161	Yes	Retain	Replace
				Coding	AN/USM-281C	Yes	Retain	Replace
AN/ARM-5A	Yes	X		System performance	AN/URM-70, MD83A	Yes	Retain	
AN/ARM-45	Yes		X	Frequency	CP772A/U, CV-2002U	Yes		Replace
				Receiver sensitivity	AN/USM-44C	Yes		Replace
					AN/URM-105	Yes		Replace
				Transmitter power	AN/URM-120	Yes		Replace
					ME/303A/U	Yes		Replace
					AN/URM-105	Yes		Replace
AN/ARM-92B			X	System performance	None			Retain
AN/ARM-93	Yes		X	Frequency	AN/USM-205A	Yes		Replace
					CP772A/U	Yes		Replace
				Receiver performance	AN/USM-205A	Yes		Replace
					TS-585/U	Yes		Replace
					AN/URM-105	Yes		Replace
					ME-459/U	Yes		Replace
				DF Control performance	AN/USM-205A	Yes		Replace
					AN/URM-105	Yes		Replace
					AN/USM-140	Yes		Replace
				Inverter performance	AN/URM-105	Yes		Replace
					CP772A/U	Yes		Replace
AN/ARM-94	Yes	X	X	Frequency	CP772A/U, CV2002/U	Yes	Retain	Replace
				Power out	AN/URM-120	Yes	Retain	Replace
				Frequency deviation	ME-57/U	Yes	Retain	Replace
AN/ARM-109	No		X	System performance	None			Retain
AN/ASM-80A	Yes	X	X	System performance	None		Retain	Retain
AN/ASM-113	Yes	X	X	System performance	None		Retain	Retain
AN/ASM-299	Yes	X		System performance	None		Retain	
AN/ASM-330	No	X	X	Troubleshooting	None		Retain	Retain
				System performance	None			Retain
AN/FCM-5B	Yes	X		Fault isolation/ location	TS-26A/TSM	Yes	Retain	
					ZM-4B/U	Yes	Retain	
				System performance	None		Retain	
AN/GPM-46A	Yes	X	X	System performance	TS-352/U	Yes	Retain	Replace
				Special tests	None		Retain	Replace
AN/GRM-33C	Yes		X	System performance	IP1216(P)/GR	Yes		Replace
					PL1406/U, PL1388/U	Yes		
					SG1125/U	Yes		

(continued)

Table 3-3. (continued)

Selected SP TMDE Included in Study					Army GP TMDE Functional Equivalent		Recommendation (Retain or Replace) (SP TMDE)	
Type Designator	DA PIL Item	Maintenance Level at Which Used		Measurements Performed	Type Designator	DA PIL Item		
		O	DS/GS/D				O-Level	DS/GS/D Level
AN/GRM-55C	Yes	X	X	Troubleshooting	AN/USM-44C	Yes	Retain	
					AN/USM-205A	Yes	Retain	
					ME-303A/U	Yes	Retain	
					CP-77'A/U	Yes	Retain	
					AN/URM-120	Yes	Retain	
					IP1216(P)/GR	Yes	Retain	
					PL1406/U, PL1388/U	Yes		
				System performance	AN/USM-44C	Yes		Replace
					ME-303A/U	Yes		Replace
					CP-772A/U	Yes		Replace
					AN/URM-120	Yes		Replace
					IP1216(P)/GR	Yes		Replace
					PL1406/U, PL1388/U	Yes		
					F1414/U	No		
AN/UPM-33	Yes	X	X	System performance	IP1216(P)/GR	Yes	Replace	Replace
					PL1400/U	Yes		
					F1414/U	No		
					PL1388/U	Yes		
AN/URM-157	Yes		X	System performance	None			Retain
TS-147D/UP	Yes	X		Frequency	CP-772A/U, PL1320/U	Yes	Retain	
				Sweep width	IP1216(P)/GR	Yes	Retain	
					PL1388/U	Yes	Retain	
					PL1400/U	Yes	Retain	
					F1414/U	Yes	Retain	
				Power out	AN/USM-161	Yes	Retain	
				Receiver sensitivity	MX8364A(P)/USM308	Yes	Retain	
					PL1304/USM308(V)	Yes	Retain	
				Pulse train	None	None	Retain	
TS-538C/U	No	X		Frequency	CP772A/U, PL1320/U	Yes	Retain	
				Receiver sensitivity	AN/URM-64A-1	Yes	Retain	
				Power out	AN/USM-161	Yes	Retain	

Table 3-4. GP TMDE BEST MIX RECOMMENDATION

Measurement Parameter	GP TMDE Instrument Nomenclature	GP TMDE Type Designator	Range of Measurements	SP TMDE* Items Replaced
Frequency	Electronic Digital Counter	CP-772A/U	0 to 50 MHz (no plug-ins)	AN/ARM-93 AN/GRM-55C
	Electronic Digital Counter with Plug-Ins	CV-2002/U	20 MHz to 512 MHz	AN/ARM-45 AN/ARM-94
	Electronic Digital Counter with Plug-Ins	PL-1320/U	50 MHz to 18 GHz	AN/APM-123 TS-147D/UP TS-538C/U
Power	Test Set, RF Power	AN/USM-161	2 µW to 10 mW, 10 MHz to 10 GHz	AN/APM-123 TS-147D/UP TS-538C/U
	Test Set, RF Power	AN/URM-120	0 to 1 kW, 2 MHz to 1 GHz	AN/ARM-45 AN/ARM-94 AN/GRM-55C
	Multimeter	TS-585C/U	0 to 5 W, 30 Hz to 10 kHz	AN/ARM-93
Multi-Function	Multimeter	AN/URM-105	0 to 1 kVdc, 0 to 1 kVac, 30 Hz to 10 kHz	AN/ARM-45 AN/ARM-93
	Multimeter	TS-352B/U	100 mV to 1 kVac, 75 µA to 10 Adc, 25 Hz to 5 kHz	AN/FCM-5B AN/GPM-46A
	Multimeter	ME-303A/U	0 to 300 Vac, 0 to 1500 Vdc, 0 to 150 mAdc, 20 Hz to 700 MHz	AN/ARM-45 AN/GRM-55C
	Telephone Test Set	TS-26A/TSM	0 to 600 Vdc, 0 to 100 kΩ	AN/FCM-5B
AC Volts	Electronic Voltmeter	ME-459/U	10 µV to 30 Vac, 10 Hz to 10 MHz	AN/ARM-93
Receiver Sensitivity	Signal Generator	AN/USM-205A	10 Hz to 10 MHz, -70 to +20 dBm	AN/ARM-93 AN/GRM-55C
	Signal Generator	AN/USM-44C	10 MHz to 480 MHz, -127 to +13 dBm	AN/ARM-45 AN/GRM-55C
	Signal Generator	AN/URM-70 with MD-83A/URM	50 MHz to 400 MHz (FM)	AN/ARM-45
	Generator Subassembly	MX-8364A (P)/USM-308	1 kHz to 30 GHz	TS-147D/UP
	Generator Subassembly with Plug-Ins	PL-1304/USM-308(V)	8.0 GHz to 12.4 GHz, 30 mW	TS-147D/UP
	Generator Subassembly with Plug-Ins	PL-1240A/USM-308(V)	4.0 GHz to 8.0 GHz, 15 mW	
	Generator Subassembly with Plug-Ins	PL-1242/USM-308(V)	1.0 GHz to 4.0 GHz, 10 mW	
	Signal Generator	AN/URM-64A-1	900 MHz to 2.1 GHz, -120 to 0 dBm	AN/APM-123 TS-538C/U
Frequency Deviation	Modulation Meter	ME-57A/U	20 MHz to 1 GHz, Δf = 0 to 1000 kHz	AN/ARM-94
Resistance	Resistance Bridge	ZM-4B/U	1 mΩ to 10 MΩ	AN/FCM-5B
Frequency Spectrum	Spectrum Analyzer	IP-1216(P)/GR PL-1388/U PL-1406/U SG-1125/U	100 kHz to 1.25 GHz	AN/FRM-33C AN/GRM-55C
	Spectrum Analyzer with Plug-Ins	IP-1216(P)/GR PL-1400/UP	10 MHz to 40 GHz	TS-147D/UP

*Common test requirements.

TYPE DESIGNATOR: AN/AAM-36

NOMENCLATURE: Optical Alignment Test Set

PUBLICATION: TM11-6625-1733-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None					
UNIQUE					
Troubleshooting	Sectionalization/ Localization/ Isolation	DS/GS	Classified	None	None
Operational Testing	Verify System Performance	DS/GS	Classified	None	None
Alignment	Verify System Performance	GS	Classified	None	None

END ITEM SUPPORTED: AN/AAS-24

(continued)

Figure 3-1. TEST DESCRIPTION

TYPE DESIGNATOR: AN/APM-123(V)3

NOMENCLATURE: Transponder Set Test Set

PUBLICATION: TM11-6625-667-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Xmtr Freq	Verify System Performance	O/DS/GS/D	1030 MHz	52	CP-772A/PL-1320/U
Xmtr Pwr Out	Verify System Performance	O/DS/GS/D	-6 dBm	62	AN/USM-161
Rcvr Sens	Verify System Performance	O/DS/GS/D	-9 dBm	15	AN/URM-64A-1
Rcvr Tuning	Verify System Performance	O/DS/GS/D	1090 MHz	52	CP-772A/PL-1320/U
UNIQUE					
Coding	Verify System Performance	O/DS/GS/D	Mode 1,2,3/A,C,4	None	

END ITEM SUPPORTED: AN/APX-44

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-5A

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-6625-828-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
VOR/LOC System Test	Verify System Performance	O	108 to 132 MHz 1-10K μv @ 51 ohms 30Hz, 90Hz, 150Hz, 9960 Hz (Modulation)	18	AN/URM-20 MD83A/ARN Modulator*
UNIQUE					
None					

END ITEM SUPPORTED: VHF Nav Rcvrs

*Not on PIL.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-45A

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-6625-409-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Rcvr Sensitivity	Verify System Perf. Repair	DS GS/D	3μv	17,28	AN/USM-44C AN/URM-105
Rcvr Tuning	Verify System Perf. Repair	DS GS/D	116-152MHz	49	CP-772A/Uw/CV-2002/U
Xmtr Tuning	Verify System Perf. Repair	DS/GS GS/D	116-150MHz	28,49	AN/URM-105 CP-772A/Uw/CY-2002/U
Xmtr Pwr. Out	Verify System Perf. Repair	DS/GS GS/D	25w(+44 dBm)	28,40, 62	AN/URM-120 ME-303A/U AN/URM-105
UNIQUE					
None					

END ITEM SUPPORTED: AN/ARC-73

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-92B

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-6625-2709-12

PIL ITEM: No

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None					
UNIQUE					
Adjust/Align	Verify System Perf.	DS	108.00 to 126.95MHz	None	None
Repair	Verify System Perf.	GS/D		None	None
Overhaul/Calibrate	Verify System Perf.	D		None	None

ALSO REQUIRES:
- DC Power Supply
- AC Power Supply
- VOR Signal Generator
- VOR Modulator
- Output Meter
- Multimeter
- Glideslope Generator
- Marker Beacon Generator

END ITEM SUPPORTED: AN/ARN-82A

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-93

NOMENCLATURE: Direction Finder Set Test Set

PUBLICATION: TM11-6625-821-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Rcvr Tests	Verify System Perf.	DS/GS/D	90-1800 KHz	1	AN/USM-205A
				61	TS-585/U
				28	AN/URM-105
				37	ME-459/U
Tuning Accuracy	Verify System Perf.	GS/D		3	AN/USM-205A
				48	CP-772A/U
DF Control	Verify System Perf.	DS/GS/D		3	AN/USM-205A
				28	AN/URM-105
				*	AN/USM-140
Inverter	Verify System Perf.	GS/D		28	AN/URM-105
				48	CP-772A/U
UNIQUE					
Antenna Tests				None	None
Indicator Tests				None	None
Tuning Time				None	None

END ITEM SUPPORTED: AN/ARN-83

*Oscilloscopes not included in OTS ETE specifications.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-94

NOMENCLATURE: Transmitter Test Set

PUBLICATION: TM11-6625-834-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Transmitter Freq.	Verify System Perf.	O/DS/GS	215-260 MHz	49	CP-772A/Uw/CV-2002/U
Transmitter Pwr Out	Verify System Perf.	O/DS/GS	50w(Max)(+47 dBm)	61/62	AN/URM-120
Transmitter Freq. Dev.	Verify System Perf.	O/DS/GS	+100 KHz	57	ME-57/U
UNIQUE					
None					

END ITEM SUPPORTED: AN/ART-41A
(No requirement appears in MAC TM11-5850-218-12)

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-109

NOMENCLATURE: Antenna Coupler Test Set

PUBLICATION: TM11-6625-1636-14

PIL ITEM: No

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None				None	None
UNIQUE					
Inspect Test Service Replace Repair	Verify System Perf.	DS		None	None
Adjust Align Repair	Verify System Perf.	GS		None	None
Overhaul Rebuild	Verify System Perf.	D		None	None

END ITEM SUPPORTED: CU-1658/U

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-80A

NOMENCLATURE: Flight Line Analyzer

PUBLICATION: TM11-6625-518-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None					
UNIQUE					
Inspect Test Service Adjust Replace Repair	Verify System Perf.	O		None	None
Test Service Adjust Replace	Verify System Perf.	GS		None	None

ALSO REQUIRES: Stopwatch
Multimeter AN/URM-105
Tool Kit TK-105/G

END ITEM SUPPORTED: AN/ASW-12

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-113

NOMENCLATURE: Navigation Signal Simulator

PUBLICATION: TM11-6625-479-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None					
UNIQUE					
System Test	Verify System Perf.	O/DS/GS/D		None	None

ALSO REQUIRES: AN/URM-105 at O-level

END ITEM SUPPORTED: AN/ASN-33
(TM11-5826-218-12 MAC does not call out AN/ASM-113. TM11-5826-218-35 does not list AN/ASM-113 in list of "Test Equipment Required.")

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-299

NOMENCLATURE: Attitude-Heading Reference Set, Test Set

PUBLICATION: TM11-6615-254-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None					
UNIQUE					
Inspect Test Service Install	Verify System Perf.	O		None	None

ALSO REQUIRES: Stopwatch
Tool Kit TK-101/G
Multimeter AN/URM-105

END ITEM SUPPORTED: AN/ASN-76

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-330

NOMENCLATURE: Flight Control Set Test Set

PUBLICATION: TM11-4920-293-12

PIL ITEM: No

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None					
UNIQUE					
Troubleshooting	Sectionalization/ Localization/ Isolation	O/DS/GS/D		None	None
Operational Testing	Verify System Perf.	DS/GS/D		None	None
Alignment	Verify System Perf.	DS/GS/D		None	None

ALSO REQUIRES: AN/URM-105
ME-30E/U

END ITEM SUPPORTED: AN/ASW-29

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/FCM-5B

NOMENCLATURE: Test Set

PUBLICATION: TM11-2030

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Line Capacitance Insulation Res. Line Resistance	Identify Line Fault	0		39	TS-26A/TSM
Open, Short, Ground, Cross Test	Identify Fault Type	0		39	TS-26A/TSM
Varley Loop Test	Locate Fault	0		25	ZM-4B/U
Foreign Battery TG Current	Verify System Perf.	0		39	TS-352B/U
Res Unbalance	Verify System Perf.	0		25	ZM-4B/U
UNIQUE					
Originate Local Trunk Originate TP Jack Ckt. Monitor TP/TG Jack Ckt. Sectionalize Fault Patching	Verify Syst. Perf.	0		None	

END ITEM SUPPORTED: Telephone Systems

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/GPM-46A

NOMENCLATURE: Radar Test Set

PUBLICATION: TM11-6625-561-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Voltate Test	Verify System Perf.	O/DS/GS/D	-300 to +285 VDC	28	TS-352/U
Rcvr/Xmtr Test	Verify System Perf.	O/D	100 µA	24	TS-352/U
UNIQUE					
Trigger & Gate Pulse	Verify System Perf.	O/D		None	None (Use calibrated oscilloscope)
Power Supply Overload	Verify System Perf.	O/GS/D		None	None
Power Indicator and Panel Illumination	Verify System Perf.	O/GS/D		None	None

END ITEM SUPPORTED: AN/APS-94B and C and Other Radars

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/GRM-33C

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-5820-523-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
General Sideband Anal Narrow Band Anal Distortion Measurements	Verify System Perf.	DS/GS/D	Freq. 1.5-64.5 MHz Sweep Width 0-2/ 0-100 KHz Sweep Rate 0.1, 1.0, 0.1-30 Hz Rate Resolution 10 Hz Image Reject 42dB (min) Sensitivity 200mv (lo) 5mv (hi)	67	IP-1216(P)/GR PL-1388/U PL-1406/U SG-1125/U
UNIQUE					
None					

END ITEM SUPPORTED: All SSB Radios

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/GRM-55C

NOMENCLATURE: Electronic Plug-In Unit Test Set

PUBLICATION: TB11-6625-514-35/1

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Troubleshooting	Sectionalization	O	0-65 MHz Modulated @ 150 Hz/1 KHz	3	AN/USM-44C
				1	AN/USM-205A
				37	ME-303A/U
				49	CP-772A/U
				61	AN/URM-120
				67	IP-1216(P)/GR
					PL-1388/U
					PL-1406/U
					SG-1125/U
Operational Testing Alignment	Verify System Perf.	DS/GS/D GS/D*		3	AN/USM-44C
				37	ME-303A/U
				49	CP-772A/U
				61	AN/URM-120
				67	IP-1216(P)/GR
					PL-1388/U
					PL-1406/U
					SG-1125/U
UNIQUE					
None					

END ITEM SUPPORTED: RT-505/PRC

*Not used at DS/GS/D level except to verify fault indication and verify system performance after maintenance action.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/UPM-33A

NOMENCLATURE: Spectrum Analyzer

PUBLICATION: TM-1249

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Freq. Range	Verify System Perf.	O/DS/GS/D	8470-9630 MHz	53	IP-1216(P)/GR
If Bandwidth	Verify System Perf.	O/DS/GS/D	50 KHz	68	w/PL-1388/U
Sig. In Atten.	Verify System Perf.	O/DS/GS/D	3-70 dB	*	PL-1400/U
Rcvr. Gain	Verify System Perf.	O/DS/GS/D	100 dB	*	F-1414/U**
Freq. Swing	Verify System Perf.	O/DS/GS/D	40-50 MHz	12	
Sweep Rate	Verify System Perf.	O/DS/GS/D	10-30 Hz	68	
Power Out	Verify System Perf.	O/DS/GS/D	0 dBm		
UNIQUE					
None					

END ITEM SUPPORTED: All X-Band Airborne Radar

*Attenuator required; these are classed as "accessories" for which no specifications were developed.
**Not on PIL but in DA PAM 700-21.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/URM-157A

NOMENCLATURE: Radio Set Test Harness

PUBLICATION: TM11-6625-622-40

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
None					
UNIQUE					
Troubleshooting & Perf. Meas.	Verify System Perf.	GS		None	None

ALSO REQUIRES:

Sig. Gen. AN/URM-127
Freq. Counter AN/USM-207A
Multimeter ME-26( )/U
Oscilloscope AN/USM-281A
Sig. Gen. AN/URM-25F
Spec. Anal. TS-723A/U
Tube Tester TV-2/U
TV-7/U
Radio Test Set TS-1956/URC
Transistor Test Set TS-1836/U
VTVM AN/URM-145
AN/USM-98
ME-30( )/U
Receiver R-1122/GR
Spec. Anal. AN/UPM-84E

END ITEM SUPPORTED: AN/ARC-102

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: TS-147D/UP

NOMENCLATURE: Test Set

PUBLICATION: TM11-1247B

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Rcvr. Tuning	Verify System Perf.	O	8.5-9.6 GHz	53 68	CP-772A/Uw/PL-1320/U IP-1216(P)/GR PL-1388/U PL-1400/U F-1414/U*
Xmtr. Tuning	Verify System Perf.	O	8.5-9.6 GHz	53 68	CP-772A/Uw/PL-1320/U IP-1216(P)/GR PL-1388/U PL-1400/U F-1414/U*
FM Sweep Width	Verify System Perf.	O	0-40 MHz	68	IP-1216(P)/GR L-1388/U PL-1400/U F-1414/U*
Xmtr Pwr. Out	Verify System Perf.	O	+7 to +30 dBm	63	AN/USM-161w/20 dB
Rcvr. Sens.	Verify System Perf.	O	-7 to -85 dBm	7	MX-8364A(P)/USM-308 w/PL-1304/USM-308(V)
UNIQUE					
Rcvr. Pulse Train	Verify System Perf.	O		None	None

END ITEM SUPPORTED: All X-band Radar Systems

*Not on PIL but in DA PAM 700-21.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: TS-538 C/U

NOMENCLATURE: Test Set

PUBLICATION: TM11-6625-821-12

PIL ITEM: No

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS ETE SPEC	PIL ITEM
COMMON					
Freq. Measurement	Verify System Perf.	0	1615-1715 MHz	52	CP-772A/Uw/PL-1320/U
Rcvr. Sens.	Verify System Perf.	0	-107 to -20 dBm	16	AN/URM 64A1
Xmtr. Pwr. Out	Verify System Perf.	0	150 to 250 mW (+22 to +24 dBm)	62	AN/USM-161
UNIQUE					
None					

END ITEM SUPPORTED: Radiosonde

Figure 3-1. (continued)

CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

ARINC Research reached the following conclusions from this study of the feasibility of replacing SP TMDE with OTS ETE or with groups of GP TMDE:

- It appears that most SP TMDE can be replaced by individual GP TMDE at the DS/GS/D maintenance levels. However, many of these SP TMDE should be retained at the organizational maintenance level because of the small number of DA-authorized GP TMDE at that level.
- SP TMDE that do not have functionally equivalent GP TMDE (e.g., special wiring harnesses, mechanical holding fixtures) must be retained in the inventory.
- The use of groups of multipurpose GP TMDE in place of SP TMDE may result in a significant cost saving (or avoidance). Further study will be required to substantiate this conclusion.
- While there may be commercial items of OTS ETE that could functionally replace SP TMDE, these items are themselves SP TMDE. Replacing SP TMDE by these limited-function, noncompetitive items would require careful assessment in such areas as mean time between failures (MTBF), mean time to calibrate (MTTC), mean time to repair (MTTR), and initial cost before a decision to use them was made.

On the basis of the analysis, ARINC Research recommends the following actions:

- Evaluate (quantify) the cost saving (avoidance) achieved by replacing SP TMDE with groups of multipurpose GP TMDE. Following this action, removal/replacement actions should be evaluated.
- Consider removing the identified items of SP TMDE from inventory at DS/GS/D levels and return to stock for issue against O-level requirements, on the basis of the results of the cost-benefit study.
- As the need for additional TMDE develops, consider replacing the identified items at DS/GS/D levels with items of GP TMDE having functional equivalence. All of the recommended replacement items (GP TMDE) are listed on the Army PIL and should be available at

the DS/GS/D sites in accordance with their respective TDAs. Revision of MACs, changes in technical manuals (procedures), and changes in test harnesses will be required.

- Retain SP TMDE items at all levels to which they are issued, where such items are indeed unique (e.g., no available GP TMDE with functional equivalence, test harness peculiar to unit under test, mechanical holding fixture).
- Study additional items of SP TMDE to establish another list of GP TMDE to be substituted. A comparison of that list with the list developed in this study could identify the additional GP TMDE required to replace these SP TMDE at higher maintenance levels.
- Update end-item MACs to reflect the present equipment requirements, since some of the MACs do not call out the SP TMDE with which some maintenance facilities are now being routinely equipped.
- Consider replacing SP TMDE with GP TMDE to satisfy common test requirements (e.g., measurement of frequency, voltage, current, power), and devise SP TMDE to satisfy the unique test requirements only (e.g., pulse coding, pulse train timing, waveform), thus separating the unique test items from the common test items.

APPENDIX A

LIST OF PUBLICATIONS

The publications listed on the following pages were used in support of this study to provide source data on test requirements of end items and test capabilities of SP TMDE.

DA PAM 700-21-1	DTC SEP 78	
DA PAM 700-21/20	DTC APR 79	
MIL-STD-13908	DTD MAY 75	
SB 700-20	DTD JAN 79	
TB 11-6625-416-35		TS-147D/UP
TB 11-6625-479-35/1		AN/ASM-113
TB 11-6625-612-35/1		AN/GPM-46A
TM 11-1247B	W/C1,2	TS-147D/UP
TM 11-1249	W/C1,2,4,5,6,7	AN/UPM-33A
TM 11-2030	W/C1,2,3,4	AN/FCM-5B
TM 11-4920-293-12	W/C1	AN/ASM-330
TM 11-4920-293-24P		AN/ASM-330
TM 11-4920-293-35		AN/ASM-330
TM 11-4920-293-45	W/C1	AN/ASM-330
TM 11-5800-213-L	DTC MAY 79	
TM 11-5820-398-12	W/C1,2,3,4	RT-505
TM 11-5820-398-34P		RT-505
TM 11-5820-398-35		RT-505
TM 11-5820-523-12	W/C1,2	AN/GRM-33C
TM 11-5820-523-35		AN/GRM-33C
TM 11-5820-523-35/1		AN/GRM-33C
TM 11-5821-217-12	W/C2,3,4	AN/ARC-73
TM 11-5821-217-20P		AN/ARC-73
TM 11-5821-217-34		AN/ARC-73
TM 11-5821-217-34P		AN/ARC-73
TM 11-5821-217-50		AN/ARC-73
TM 11-5821-248-12	W/C1,2,3,4	AN/ARC-102
TM 11-5821-248-20P		AN/ARC-102
TM 11-5821-248-34P		AN/ARC-102
TM 11-5821-248-35	W/C1,2	AN/ARC-102
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-5826-225-12	W/C1,2	AN/ARN-83
TM 11-5826-225-20P		AN/ARN-83
TM 11-5826-225-34P		AN/ARN-83
TM 11-5826-225-35	W/C1,2,3	AN/ARN-83
TM 11-5826-226-20	W/C1,2	AN/ARN-82A
TM 11-5826-226-34	W/C1,2,3	AN/ARN-82A
TM 11-5826-226-34P		AN/ARN-82A
TM 11-5826-226-50-1		AN/ARN-82A
TM 11-5826-226-50-2		AN/ARN-82A
TM 11-5850-218-12	W/C1,2	AN/ART-41A
TM 11-5850-218-20P		AN/ART-41A
TM 11-5850-218-35	W/C1,2,3	AN/ART-41A

TM 11-5850-218-35P		AN/ART-41A
TM 11-5850-241-12	W/C1,2,3	AN/AAS-24
TM 11-5850-241-34/1	W/C1	AN/AAS-24
TM 11-5850-241-34/2		AN/AAS-24
TM 11-5850-241-34P		AN/AAS-24
TM 11-5850-241-50/1-1	W/C1	AN/AAS-24
TM 11-5850-241-50/1-2	W/C1	AN/AAS-24
TM 11-5850-241-50/1-3	W/C1	AN/AAS-24
TM 11-5850-241-50/2		AN/AAS-24
TM 11-5895-217-12	W/C3,4	AN/APX-44
TM 11-5895-217-35	W/C1,2,3,5,6,7	AN/APX-44
TM 11-5895-284-12	W/C1	AN/APS-948+C
TM 11-5895-284-35/1		AN/APS-948+C
TM 11-5895-284-35/2	W/C1	AN/APS-948+C
TM 11-5895-284-35/4		AN/APS-948+C
TM 11-5985-326-20		CU-1658/U
TM 11-5985-326-34P	W/C1	CU-1658/U
TM 11-5985-326-35	W/C1	CU-1658/U
TM 11-6615-204-12		AN/ASW-12
TM 11-6615-204-20P		AN/ASW-12
TM 11-6615-204-35	W/C1,2	AN/ASW-12
TM 11-6615-204-35P	W/C1	AN/ASW-12
TM 11-6615-241-20P		AN/ASW-29
TM 11-6615-241-34P		AN/ASW-29
TM 11-6615-241-35	W/C1,2	AN/ASW-29
TM 11-6615-245-20	W/C1,2	AN/ASN-76
TM 11-6615-245-34P	W/C1	AN/ASN-76
TM 11-6615-245-35	W/C1,2	AN/ASN-76
TM 11-6615-254-12	W/C1,2	AN/ASM-299
TM 11-6615-254-24P		AN/ASM-299
TM 11-6615-254-35		AN/ASM-299
TM 11-6615-254-45	W/C1,2	AN/ASM-299
TM 11-6625-1636-14		AN/ARM-109
TM 11-6625-1636-20P		AN/ARM-109
TM 11-6625-1636-34P		AN/ARM-109
TM 11-6625-1636-35	W/C1	AN/ARM-109
TM 11-6625-1733-12	W/C1,2	AN/AAM-36
TM 11-6625-1733-40P		AN/AAM-36
TM 11-6625-1733-45	W/C1,2	AN/AAM-36
TM 11-6625-213-12	W/C1	TS-538C/U
TM 11-6625-213-20P		TS-538C/U
TM 11-6625-213-35		TS-538C/U
TM 11-6625-213-35P		TS-538C/U
TM 11-6625-2709-12		AN/ARM-92B
TM 11-6625-270920P		AN/ARM-92B
TM 11-6625-270935		AN/ARM-92B
TM 11-6625-270940		AN/ARM-92B
TM 11-6625-270940P		AN/ARM-92B
TM 11-6625-297-20P		AN/LPM-33A
TM 11-6625-297-35	W/C1	AN/LPM-33A
TM 11-6625-297-40P		AN/LPM-33A

TM 11-6625-372-20P		AN/FCM-5B
TM 11-6625-372-35/2		AN/FCM-5B
TM 11-6625-372-35P		AN/FCM-5B
TM 11-6625-409-12		AN/ARM-45A
TM 11-6625-409-20P		AN/ARM-45A
TM 11-6625-409-34P		AN/ARM-45A
TM 11-6625-409-35	W/C1,2	AN/ARM-45A
TM 11-6625-443-12P		AN/ASW-12
TM 11-6625-443-35P		AN/ASW-12
TM 11-6625-479-12	W/C1,2,3,4	AN/ASM-113
TM 11-6625-479-20P		AN/ASM-113
TM 11-6625-479-40P		AN/ASM-113
TM 11-6625-479-45	W/C1,2	AN/ASM-113
TM 11-6625-514-12	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-20P		AN/GRM-55C
TM 11-6625-514-35/1		AN/GRM-55C
TM 11-6625-514-45	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-45P		AN/GRM-55C
TM 11-6625-518-12	W/C1,2,3	AN/ASM-80A
TM 11-6625-518-20P		AN/ASM-80A
TM 11-6625-518-40P		AN/ASM-80A
TM 11-6625-518-45	W/C1,2,3,4	AN/ASM-80A
TM 11-6625-561-12	W/C1,2,3	AN/GPM-46A
TM 11-6625-561-24P		AN/GPM-46A
TM 11-6625-561-45		AN/GPM-46A
TM 11-6625-622-34P		AN/URM-157A
TM 11-6625-622-40	W/C1	AN/URM-157A
TM 11-6625-667-12	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-667-24P		AN/APM-123(V)3
TM 11-6625-667-35	W/C1,2	AN/APM-123(V)3
TM 11-6625-667-45	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-821-12	W/C1,2,3	AN/ARM-93
TM 11-6625-821-35-1		AN/ARM-93
TM 11-6625-821-40P		AN/ARM-93
TM 11-6625-821-45	W/C1,2,3	AN/ARM-93
TM 11-6625-828-12	W/C1	AN/ARM-5A
TM 11-6625-828-20P		AN/ARM-5A
TM 11-6625-828-45	W/C1	AN/ARM-5A
TM 11-6625-834-12	W/C1,2	AN/ARM-94
TM 11-6625-834-20P		AN/ARM-94
TM 11-6625-834-35		AN/ARM-94
TM 11-6625-834-40P		AN/ARM-94
TM 11-6625-834-45		AN/ARM-94
DA PAM 700-21-1	DTD SEP 78	
DA PAM 700-21/20	DTD APR 79	
MIL-STD-1390B	DTD MAY 75	
SB 700-20	DTD JAN 79	
TM 11-5800-213-L	DTD MAY 79	
TM 11-6625-1733-12	W/C1,2	AN/AAM-36
TM 11-6625-1733-45	W/C1,2	AN/AAM-36

TM 11-6625-1733-40P		AN/AAM-36
TM 11-5850-241-12	W/C1,2,3	AN/AAS-24
TM 11-5850-241-34/1	W/C1	AN/AAS-24
TM 11-5850-241-34/2		AN/AAS-24
TM 11-5850-241-34P		AN/AAS-24
TM 11-5850-241-50/2		AN/AAS-24
TM 11-5850-241-50/1-1	W/C1	AN/AAS-24
TM 11-5850-241-50/1-2	W/C1	AN/AAS-24
TM 11-5850-241-50/1-3	W/C1	AN/AAS-24
TM 11-6625-667-12	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-667-24P		AN/APM-123(V)3
TM 11-6625-667-45	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-667-35	W/C1,2	AN/APM-123(V)3
TM 11-5895-284-12	W/C1	AN/APS-948+C
TM 11-5895-284-35/1		AN/APS-948+C
TM 11-5895-284-35/2	W/C1	AN/APS-948+C
TM 11-5895-284-35/4		AN/APS-948+C
TM 11-5895-217-12	W/C3,4	AN/APX-44
TM 11-5895-217-35	W/C1,2,3,5,6,7	AN/APX-44
TM 11-5821-248-12	W/C1,2,3,4	AN/ARC-102
TM 11-5821-248-20P		AN/ARC-102
TM 11-5821-248-34P		AN/ARC-102
TM 11-5821-248-35	W/C1,2	AN/ARC-102
TM 11-5821-217-12	W/C2,3,4	AN/ARC-73
TM 11-5821-217-20P		AN/ARC-73
TM 11-5821-217-34		AN/ARC-73
TM 11-5821-217-34P		AN/ARC-73
TM 11-5821-217-50		AN/ARC-73
TM 11-6625-1636-14		AN/ARM-109
TM 11-6625-1636-20P		AN/ARM-109
TM 11-6625-1636-34P		AN/ARM-109
TM 11-6625-1636-35	W/C1	AN/ARM-109
TM 11-6625-409-12		AN/ARM-45A
TM 11-6625-409-20P		AN/ARM-45A
TM 11-6625-409-34P		AN/ARM-45A
TM 11-6625-409-35	W/C1,2	AN/ARM-45A
TM 11-6625-828-12	W/C1	AN/ARM-5A
TM 11-6625-828-45	W/C1	AN/ARM-5A
TM 11-6625-828-20P		AN/ARM-5A
TM 11-6625-834-12	W/C1,2	AN/ARM-94
TM 11-6625-834-45		AN/ARM-94
TM 11-6625-834-20P		AN/ARM-94
TM 11-6625-834-40P		AN/ARM-94
TM 11-6625-834-35		AN/ARM-94
TM 11-6625-2709-12		AN/ARM-92B
TM 11-6625-270920P		AN/ARM-92B
TM 11-6625-270940P		AN/ARM-92B
TM 11-6625-270940		AN/ARM-92B
TM 11-6625-270935		AN/ARM-92B
TM 11-6625-821-12	W/C1,2,3	AN/ARM-93
TM 11-6625-821-45	W/C1,2,3	AN/ARM-93

TM 11-6625-821-40P		AN/ARM-93
TM 11-6625-821-35-1		AN/ARM-93
TM 11-5826-226-20	W/C1,2	AN/ARN-82A
TM 11-5826-226-34	W/C1,2,3	AN/ARN-82A
TM 11-5826-226-34P		AN/ARN-82A
TM 11-5826-226-50-1		AN/ARN-82A
TM 11-5826-226-50-2		AN/ARN-82A
TM 11-5826-225-12	W/C1,2	AN/ARN-83
TM 11-5826-225-35	W/C1,2,3	AN/ARN-83
TM 11-5826-225-20P		AN/ARN-83
TM 11-5826-225-34P		AN/ARN-83
TM 11-5850-218-12	W/C1,2	AN/ART-41A
TM 11-5850-218-35	W/C1,2,3	AN/ART-41A
TM 11-5850-218-20P		AN/ART-41A
TM 11-5850-218-35P		AN/ART-41A
TM 11-6625-479-12	W/C1,2,3,4	AN/ASM-113
TM 11-6625-479-45	W/C1,2	AN/ASM-113
TM 11-6625-479-20P		AN/ASM-113
TM 11-6625-479-40P		AN/ASM-113
TB 11-6625-479-35/1		AN/ASM-113
TM 11-6615-254-12	W/C1,2	AN/ASM-299
TM 11-6615-254-45	W/C1,2	AN/ASM-299
TM 11-6615-254-24P		AN/ASM-299
TM 11-6615-254-35		AN/ASM-299
TM 11-4920-293-12	W/C1	AN/ASM-330
TM 11-4920-293-45	W/C1	AN/ASM-330
TM 11-4920-293-24P		AN/ASM-330
TM 11-4920-293-35		AN/ASM-330
TM 11-6625-518-12	W/C1,2,3	AN/ASM-80A
TM 11-6625-518-45	W/C1,2,3,4	AN/ASM-80A
TM 11-6625-518-20P		AN/ASM-80A
TM 11-6625-518-40P		AN/ASM-80A
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-6615-245-20	W/C1,2	AN/ASN-76
TM 11-6615-245-34P	W/C1	AN/ASN-76
TM 11-6615-245-35	W/C1,2	AN/ASN-76
TM 11-6625-443-12P		AN/ASW-12
TM 11-6625-443-35P		AN/ASW-12
TM 11-6615-204-12		AN/ASW-12
TM 11-6615-204-20P		AN/ASW-12
TM 11-6615-204-35	W/C1,2	AN/ASW-12
TM 11-6615-204-35P	W/C1	AN/ASW-12
TM 11-6615-241-20P		AN/ASW-29
TM 11-6615-241-34P		AN/ASW-29

TM 11-6615-241-35	W/C1,2	AN/ASW-29
TM 11-2030	W/C1,2,3,4	AN/FCM-5B
TM 11-6625-372-20P		AN/FCM-5B
TM 11-6625-372-35P		AN/FCM-5B
TM 11-6625-372-35/2		AN/FCM-5B
TM 11-6625-561-12	W/C1,2,3	AN/GPM-46A
TM 11-6625-561-45		AN/GPM-46A
TM 11-6625-561-24P		AN/GPM-46A
TB 11-6625-812-35/1		AN/GPM-46A
TM 11-5820-523-12	W/C1,2	AN/GRM-33C
TM 11-5820-523-35		AN/GRM-33C
TM 11-5820-523-35/1		AN/GRM-33C
TM 11-6625-514-12	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-45	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-20P		AN/GRM-55C
TM 11-6625-514-45P		AN/GRM-55C
TM 11-6625-514-35/1		AN/GRM-55C
TM 11-1249	W/C1,2,4,5,6,7	AN/LPM-33A
TM 11-6625-297-20P		AN/LPM-33A
TM 11-6625-297-40P		AN/LPM-33A
TM 11-6625-297-35	W/C1	AN/LPM-33A
TM 11-6625-622-34P		AN/LRM-157A
TM 11-6625-622-40	W/C1	AN/LRM-157A
TM 11-5985-326-20		CU-1658/U
TM 11-5985-326-34P	W/C1	CU-1658/U
TM 11-5985-326-35	W/C1	CU-1658/U
TM 11-5820-398-12	W/C1,2,3,4	RT-505
TM 11-5820-398-34P		RT-505
TM 11-5820-398-35		RT-505
TM 11-1247B	W/C1,2	TS-147D/UP
TB 11-6625-416-35		TS-147D/UP
TM 11-6625-213-12	W/C1	TS-538C/U
TM 11-6625-213-20P		TS-538C/U
TM 11-6625-213-35		TS-538C/U
TM 11-6625-213-35P		TS-538C/U

APPENDIX B

SP TMDE FAMILY CODES

Computer printouts of TMDE family codes, sorted alphabetically and numerically, are reproduced on the following pages. Some are codes that were established in earlier studies, and some are newly created to accommodate the SP TMDE.

391 AUDIO OUTPUT TEST SET
544 AUTOPILOT/STABILIZATION ACTUATOR TEST SET
543 AUTOPILOT/STABILIZATION COMPUTER TEST SET
542 AUTOPILOT/STABILIZATION ENSCR TEST SET
541 AUTOPILOT/STABILIZATION SYSTEM TEST SET
545 AUTOPILOT/STABILIZATION WIRING HARNESS TEST SET
007 BATTERY TEST SET
384 CONSEALED PERSONNEL TEST SET
341 CRYSTAL TEST SET
124 ENGINE ANALYZER
120 FLUID FLOW TEST SET
113 GUIDANCE SYSTEM TEST SET
362 INFARRED TEST SET
370 MAINTENANCE KITS TEST SET
028 MASS SPECTROMETER
513 NAVIGATION INERTIAL COMPUTER TEST SET
514 NAVIGATION INERTIAL DISPLAY TEST SET
512 NAVIGATION INERTIAL SENSOR TEST SET
515 NAVIGATION INERTIAL SERVO TEST SET
511 NAVIGATION INERTIAL SYSTEM TEST SET
524 NAVIGATION RADAR DISPLAY TEST SET
525 NAVIGATION RADAR POWER SUPPLY TEST SET
523 NAVIGATION RADAR SIGNAL PROCESSOR
521 NAVIGATION RADAR SYSTEM TEST SET
522 NAVIGATION RADAR TRANSMITTER/RECEIVER TEST SET
360 OPTICAL TEST SET
361 PHOTOGRAPHIC TEST SET
039 POWER METER AC
123 POWER SUPPLY TEST SET
314 RADAR ANTENNA TEST SET
317 RADAR DISPLAY TEST SET
316 RADAR POWER SUPPLY TEST SET
313 RADAR RECEIVER TEST SET
315 RADAR SIGNAL PROCESSOR TEST SET
311 RADAR SYSTEM TEST SET
012 RADAR TEST SET
312 RADAR TRANSMITTER TEST SET
324 RADIO COMMUNICATION ANTENNA TEST SET
325 RADIO COMMUNICATION MODEM/CODEC TEST SET
326 RADIO COMMUNICATION POWER SUPPLY TEST SET
323 RADIO COMMUNICATION RECEIVER TEST SET
321 RADIO COMMUNICATION SYSTEM TEST SET
322 RADIO COMMUNICATION TRANSMITTER TEST SET
334 RADIO NAVIGATION ANTENNA TEST SET
337 RADIO NAVIGATION DISPLAY TEST SET
335 RADIO NAVIGATION MODULATOR TEST SET
336 RADIO NAVIGATION POWER SUPPLY TEST SET
333 RADIO NAVIGATION RECEIVER TEST SET
331 RADIO NAVIGATION SYSTEM TEST SET

332 RADIO NAVIGATION TRANSMITTER TEST SET
015 RADIO TEST SET
115 RELAY TEST SET
044 SCINTILLATION COUNTER
046 SIGNAL GENERATOR COMB
048 SIGNAL GENERATOR TWO-TONE
058 SIGNAL GENERATOR VARIABLE PHASE
390 SIGNAL SIMULATORS TEST SET
200 SPECIAL PURPOSE
064 STRIP CHART RECORDER
340 SUBASSEMBLY TEST SET
560 TELEPHONE TEST SET
318 TRANSPONDER TEST SET
382 WEAPONS CONVENTIONAL TEST SET
381 WEAPONS MISSILE TEST SET
383 WEAPONS NUCLEAR
083 WORD GENERATOR

Numerical Sequence

007 BATTERY TEST SET
012 RADAR TEST SET
015 RADIO TEST SET
028 MASS SPECTROMETER
039 POWER METER AC
044 SCINTILLATION COUNTER
046 SIGNAL GENERATOR COMB
048 SIGNAL GENERATOR TWO-TONE
058 SIGNAL GENERATOR VARIABLE PHASE
064 STRIP CHART RECORDER
083 WORD GENERATOR
113 GUIDANCE SYSTEM TEST SET
115 RELAY TEST SET
120 FLUID FLOW TEST SET
123 POWER SUPPLY TEST SET
124 ENGINE ANALYZER
200 SPECIAL PURPOSE
311 RADAR SYSTEM TEST SET
312 RADAR TRANSMITTER TEST SET
313 RADAR RECEIVER TEST SET
314 RADAR ANTENNA TEST SET
315 RADAR SIGNAL PROCESSOR TEST SET
316 RADAR POWER SUPPLY TEST SET
317 RADAR DISPLAY TEST SET
318 TRANSPONDER TEST SET
321 RADIO COMMUNICATION SYSTEM TEST SET
322 RADIO COMMUNICATION TRANSMITTER TEST SET

323 RADIO COMMUNICATION RECEIVER TEST SET
324 RADIO COMMUNICATION ANTENNA TEST SET
325 RADIO COMMUNICATION MODEM/CODEC TEST SET
326 RADIO COMMUNICATION POWER SUPPLY TEST SET
331 RADIO NAVIGATION SYSTEM TEST SET
332 RADIO NAVIGATION TRANSMITTER TEST SET
333 RADIO NAVIGATION RECEIVER TEST SET
334 RADIO NAVIGATION ANTENNA TEST SET
335 RADIO NAVIGATION MODULATOR TEST SET
336 RADIO NAVIGATION POWER SUPPLY TEST SET
337 RADIO NAVIGATION DISPLAY TEST SET
340 SUBASSEMBLY TEST SET
341 CRYSTAL TEST SET
360 OPTICAL TEST SET
361 PHOTOGRAPHIC TEST SET
362 INFARRED TEST SET
370 MAINTENANCE KITS TEST SET
381 WEAPONS MISSILE TEST SET
382 WEAPONS CONVENTIONAL TEST SET
383 WEAPONS NUCLEAR
384 CONSEALED PERSONNEL TEST SET
390 SIGNAL SIMULATORS TEST SET
391 AUDIO OUTPUT TEST SET
511 NAVIGATION INERTIAL SYSTEM TEST SET
512 NAVIGATION INERTIAL SENSOR TEST SET
513 NAVIGATION INERTIAL COMPUTER TEST SET
514 NAVIGATION INERTIAL DISPLAY TEST SET
515 NAVIGATION INERTIAL SERVO TEST SET
521 NAVIGATION RADAR SYSTEM TEST SET
522 NAVIGATION RADAR TRANSMITTER/RECEIVER TEST SET
523 NAVIGATION RADAR SIGNAL PROCESSOR
524 NAVIGATION RADAR DISPLAY TEST SET
525 NAVIGATION RADAR POWER SUPPLY TEST SET
541 AUTOPILOT/STABILIZATION SYSTEM TEST SET
542 AUTOPILOT/STABILIZATION ENSOR TEST SET
543 AUTOPILOT/STABILIZATION COMPUTER TEST SET
544 AUTOPILOT/STABILIZATION ACTUATOR TEST SET
545 AUTOPILOT/STABILIZATION WIRING HARNESS TEST SET
560 TELEPHONE TEST SET

APPENDIX C

U.S. ARMY SPECIAL PURPOSE TMDE PARAMETERS

Computer printouts of pertinent operating parameters of SP TMDE are reproduced on the following pages. These parameters were extracted from the appropriate publications for the SP TMDE currently in inventory.

(Published Separately as Volume II)

APPENDIX D

DEFINITIZATION OF SPECIAL PURPOSE SPECIFICATIONS

The following pages reproduce computer printouts of performance parameters of special purpose electronic test equipment, sorted by applicable military off-the-shelf specification and by parameter. All SP ETE are listed.

(Published Separately as Volume II)

APPENDIX E

SPECIAL PURPOSE SPECIFICATION PARAMETERS

The following pages reproduce computer printouts of performance requirements as specified for special purpose electronic test equipment in military off-the-shelf specifications that were developed in an earlier study.

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
AUDIO OUTPUT TEST SET	H4	7		391	9273

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	AUDIO OUTPUT TEST SET	
FREQ RANGE	26500	30HZ TO 10KHZ	
OHMS,	35300	600MILLI TO 20K OHMS	+/-3 PCT
POWER RANGE	56800	-10 TO 43DB	+/-6 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
AUTOPILOT/STABILIZATION ACTUATORS	F6	7		544	9242

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	AUTOPILOT/STABILIZATION ACTUATORS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 400HZ	
CURRENT,DC	14800	0 TO 15MA	+/-2 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
AUTOPILOT/STABILIZATION COMPUTER TS	E5	7		543	9241

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	AUTOPILOT/STABILIZATION COMPUTER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ	
DEGREES	16500	0 TO 15	
VOLTAGE,AC READOUT	83900	0.5 VAC IN-PHASE 0.5 VAC OUT-OF-PHASE, 2.0 VAC IN-PHASE	
	83901	2.0 VAC OUT-OF-PHASE, 5.0 VAC IN-PHASE 5.0 VAC OUT-OF-	
	83902	PHASE, -7 TO +7VDC	
VOLTAGE,AC	84000	0 TO 500V	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
AUTOPILOT/STABILIZATION SENSORS TS	E4	7		542	9240

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	AUTOPILOT/STABILIZATION SENSORS TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-420HZ	
CURRENT,AC	14400	0 TO 100UA	+/-4 PCT
DEGREES	16500	0 TO 360 DEG IN 6MIN INCREMENTS	
RESISTANCE MEASUREMENT	59600	0 TO 5	+/-5 PCT
VOLTAGE,AC READOUT	83900	0 TO 50VAC	+/-5PCT FS
VOLTAGE,AC	84000	0 TO 125VAC	+/-0.75PCT
VOLTAGE,DC	84400	0 TO 5VDC	+/-2PCT FS
VOLTAGE OUTPUT	84900	0 TO 27.5VDC	+/-5 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
AUTOPILOT/STABILIZATION SYSTEM TS	E3	7		541	9239

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	AUTOPILOT/STABILIZATION SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-420HZ	
CURRENT,DC	14800	0 TO 20MA	
FREQUENCY OUTPUT RANGE	26600	0 TO 10PHZ	
VOLTAGE,AC READOUT	83900	-115VAC TO +115VAC	
VOLTAGE,DC	84400	-20 TO +20V	
VOLTAGE OUTPUT	84900	-500 TO +500MVDC,0 TO 1.2VAC,ALL OUT ARE VARIABLE	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
BATTERY TEST SET	G8	7		007	9245

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	BATTERY TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 60HZ	
CURRENT,DC	14800	0 TO 600A	
OHMS	35300	0 TO 100MEGA	
TEMPERATURE,RANGE	75210	0 TO 125	
VOLTAGE,DC	84400	0 TO 600V	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
CONSEALED PERSONNEL TEST SET	H6	7		384	9275

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	CONSEALED PERSONNEL TEST SET	
CURRENT,DC	14800	0 TO 100MILLIAMPS	+/-20 PCT
OHMS	35300	0 TO 1K	
VOLTAGE,AC	84000	100MILLI TO 1KV	
VOLTAGE,DC	84400	10MV TO 750V	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
CRYSTAL TEST SET	H5	7		341	9274

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	CRYSTAL TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-1000HZ	
CAPACITANCE RANGE	08400	12UUF TO 110UUF	+/-0.5UUF
FREQ RANGE	26500	10KHZ TO 140MHZ	
OHMS	35300	0 TO 500K	
VOLTAGE,DC	84400	0 TO 25V	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
ENGINE ANALYZER	G7	7		124	9261

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	ENGINE ANALYZER	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-400HZ	
CURRENT,AC	14400	0 TO 15A	+/-2 PCT
CURRENT,DC	14800	0 TO 20A	+/-2 PCT
DEGREES	16500	0 TO 360	+/-1 PCT
OHMS	35300	0 TO 50MEGA	
POWER RANGE	56800	0 TO 100KW	
REVOLUTIONS PER MINUTE (R	61600	0 TO 10K RPM	
VOLTAGE,AC	84000	0 TO 1KV	
VOLTAGE,DC	84400	0 TO 10KV	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
INFARRED TEST SET	H3	7		362	9272

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	INFARRED TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/220VAC 50-420HZ	
FREQ RANGE	26500	116MHZ TO 149.9MHZ	
POWER RANGE	56800	5 TO 10 MILLIWATT-SECONDS	
VOLTAGE,DC	84400	0 TO 70V	+/-0.1 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION INERTIAL COMPUTER TS	05	7		513	9232

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION INERTIAL COMPUTER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
CURRENT,DC	14800	0 TO 3A	
SIGNAL WAVEFORMS	50000	100-0-100UA DC	+/-2 PCT
RATIO,AC	57400	0 TO 9999	
SIGNAL LEVEL,INPUT	65200	STEERING POINTER 0-10 VDC (+ OR -) STEERING FLAG 0-6VDC	
TIME INTERVAL MEASUREMENT	78000	0.01 TO 60MIN	
VOLTAGE,AC	84000	1.0MV TO 300V	+/-2 PCT
VOLTAGE,DC	84400	0 TO 500V	+/-2 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION INERTIAL DISPLAY TS	06	7		514	9233

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATIONAL INERTIAL DISPLAY TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50 TO 420HZ	
DEGREES	16500	0 TO 360	+/-0.5 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION INERTIAL SENSORS TS	D4	7		512	9231

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION INERTIAL SENSORS TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-420HZ	
CURRENT,AC	14400	0 TO 500MA	+/-2 PCT
DEGREES	16500	0 TO 360	+/-3 PCT
EVENT COUNTERS	23200	0.00001 TO 1.0 PER SEC	
FREQ RANGE	26500	380 TO 420HZ	+/-0.25PCT
SIGNAL WAVEFORMS	50000	CONSIST OF A STREAM OF 2600HZ BURST,40-60MILLI SEC WIDE	
VOLTAGE,DC	84400	0 TO 30VDC	+/-2 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION INERTIAL SERVO TEST SET	H7	7		515	9276

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION INERTIAL SERVO TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
CURRENT,AC	14400	0 TO 150MA	
CURRENT,DC	14800	0 TO 5MA	+/-1 PCT
DEGREES	16500	0 TO 360	15S OF ARC
RATIO,AC	57400	0 TO 99.99	
SENSITIVITY	63600	-75MA TO +75MA	
TIME INTERVAL MEASUREMENT	78000	0 TO 60SEC	
VOLTAGE,AC	84000	1MV TO 1KV	+/-2 PCT
VOLTAGE,DC	84400	-20V TO 750V	+/-1 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION INERTIAL SYSTEM TEST SET	03	7		511	9230

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION INERTIAL SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VDC 400HZ	
CURRENT,DC	14800	0 TO 5MA	
VOLTAGE OUTPUT	84900	-10 TO +10MV,-20 TO +20V,-550 TO +550MVDC CONTINUOUSLY	
	84901	VARIABLE	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION RADAR SIGNAL PROCESSOR	09	7		523	9236

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION RADAR SIGNAL PROCESSOR	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 400HZ	
DEGREES	16500	0 TO 360	
SIGNAL LEVEL,INPUT	65200	50 TO 342 KNOTS AIRSPEED, 0 TO 360 DEG HEADING, 0 TO 360	
	65201	DEG TRACKING, 0 TO 30 DEG DRIFT, 0 TO 292 GROUNDSPEED IN	
	65202	KNOTS, AND AIRSPEED 40 TO 50 KNOTS AND -0 TO 50 KNOTS	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION RADAR SYSTEM TEST SET	D7	7		521	9234

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION RADAR SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208V1C 400HZ	
DEGREES	16500	0 TO 360	
SIGNAL WAVEFORMS	50000	0 TO 90DEG DRIFT ANGLE,0-999.9 KNOTS GROUND SPEED	
VOLTAGE,AC READOUT	83900	0 TO 150V	+/-2 PCT
VOLTAGE OUTPUT	84900	90 TO 140V	+/-1 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
NAVIGATION RADAR TRANSMITTER/REC TS	C8	7		522	9235

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION RADAR TRANSMITTER/REC TS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 400HZ	
VOLTAGE,AC	84000	90 TO 140V	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
OPTICAL TEST SET	C5	7		360	9223

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	OPTICAL TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ	
ANGSTROM	02100	3K TO 7.6K	
CURRENT,DC	14800	0 TO 500MA	+/-3 PCT
FOOT-CANDLES	25300	10U TO 150	
FOOT-LAMBERTS	25500	0 TO 100MEGA	
FREQ RANGE	26500	20HZ TO 100KHZ	
POWER RANGE	56800	0 TO 60MICPO	
RESISTANCE MEASUREMENT	59600	200 TO 20MEGA	+/-0.5PCT
TIME INTERVAL MEASUREMENT	78000	RANGE +/-10MIN OF ARC +/-1SEC ON 5-15RANGE AND +/-2	
	78001	SEC ON 15-20MIN RANGE	
VOLTAGE,DC	84400	0 TO 2KV	+/-0.1PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
PHOTOGRAPHIC TEST SET	H2	7		361	9271

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	PHOTOGRAPHIC TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ	
CURRENT,AC	14400	0 TO 100UA	+/-5 PCT
CURRENT,DC	14800	0 TO 50UA	+/-5 PCT
FLASH CHARACTERISTICS	24400	SCANNER RATES 10 AND 30 TIMES PER SEC	
FOOT-LAMBERTS	25500	10U TO 10MEGA	+/-10 PCT
VOLTAGE,AC	84000	0 TO 120V	+/-10 PCT
VOLTAGE,DC	84400	0 TO 30V	

SP ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
POWER METER AC	F3	7		039	9248

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	POWER METER AC	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60HZ	
CURRENT,AC	14400	0 TO 225A	
FREQ RANGE	26500	1 TO 450HZ	+/-1 PCT
POWER RANGE	56800	0 TO 160KW	+/-1 PCT
VOLTAGE,AC	84000	0 TO 600V	+/-1 PCT

SP ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
POWER SUPPLY TEST SET	G6	7		123	9260

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	POWER SUPPLY TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-400HZ	
CURRENT,AC	14400	0 TO 15A	
CURRENT,DC	14800	0 TO 50A	
FREQ RANGE	26500	360 TO 440HZ	
POWER RANGE	56800	0 TO 18KW	
VOLTAGE,AC	84000	0 TO 150V	
VOLTAGE,DC	84400	0 TO 1KV	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADAR ANTENNA TEST SET	A4	7		314	9203

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADAR ANTENNA TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ	
READOUT METHOD(S)	00160	GRAPH-ACCURATE TO 1/4DB AND .36DEGREE BANDWIDTH +/-20HZ	
RADIATION PATTERN MEASURE	57600	0 TO 100MICROVOLT 0 TO 360 DEG	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADAR DISPLAYS TS	A7	7		317	9206

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADAR DISPLAYS TS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ	
CURRENT,DC	14800	0 TO 10AMPS	
FREQ RANGE	26500	380HZ TO 420HZ	
PULSE WIDTH	56010	1 USEC OR 167 USEC	+/-4 USEC
VIDEO OUTPUTS	83600	750HZ	
VOLTAGE,DC	84400	0 TO 28.2 VDC OUT, 0 TO 11 VDC OUT	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADAR RECEIVER TEST SET	A3	7		313	9202

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADAR RECEIVER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-420HZ	
CURRENT,DC	14800	0 TO 100.0 MICROAMP	
DEGREES	16500	0 TO 360	+/-0.05PCT
FREQ RANGE	26500	2GHZ TO 40GHZ	
POWER RANGE	56800	-110DB TO +60DB	
EQUIPMENT NAME	00100	RADAR SIGNAL PROCESSOR TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/220VAC 45-420HZ	
BANDWIDTH	05200	PROCESSES NARROW BAND 1KHZ SIG FROM MICROWAVE DETECTOR	
CURRENT,AC	14400	100MILLI TO 1AMP	+/-1 PCT
CURRENT,DC	14800	100MILLI TO 1AMP	+/-1 PCT
DISTANCE OPERATING RANGE	18800	80 TO 2000 YARDS	+/-10 YDS
DYNAMIC RANGE	22000	30DB	
FREQ RANGE	26500	1.03GHZ TO 1.09GHZ 2 RANGES	+/-0.3 PCT
OHMS	35300	0 TO 10MEGA	+/-0.5 PCT
PHASE ANGLE MEASUREMENT	52800	0 TO 360 DEG	+/-1 MSEC
PULSE WIDTH	56010	1.0 MSEC	+/-1 MSEC
EX,PULSE RISE TIME	56030	0.07 MSEC MAX	
EX, PULSE POLARITY & VOLT	56060	0 TO 1.5V	
POWER RANGE	56800	-100DB TO +40DB	+/-0.2 PCT
VIDEO OUTPUTS	83600	30 TO 46DB. ABOVE 38 DB IS PROPER OPERATION	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADAR SYSTEM TEST SET	A1	7		311	9200

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADAR SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50 TO 400HZ	
BANDWIDTH	05200	12 MHZ AT 40 MHZ	
CURRENT,DC	14800	0 TO 1000AMPS	
FREQ RANGE	26500	925MHZ TO 17GHZ	
FREQ OUTPUT LEVEL STABILI	26700	1.09GHZ	
FREQ SHIFT	27000	1.07 TO 1.11GHZ	
OUTPUT,AUDIO	49200	10 VOLTS AT 500 TO 1500 HZ	
SIGNAL WAVEFORMS	50000	PULSE,SQ WAVE,SAWTOOTH,VAR RISE/FALL TIME,AMPLITUDE	
EX,PULSE REPTTION RATE	56020	10 HZ TO 10 KHZ	
EX, PULSE POLARITY & VOLT	56060	25-50 VOLTS VIDEO INPUT, 3200 VOLTS PEAK MODULATOR INPUT	
POWER RANGE	56800	-90DBM TO +25DBM	
SENSITIVITY	63600	RECEIVER 20-120DB BELOW 1VOLT	
SWEEP RATE	73200	0.75 TO 16MHZ/SEC	
VOLTAGE,AC	84000	-40 TO 200VOLTS	
VOLTAGE,DC	84400	0 TO 100VOLTS	
VOLTAGE OUTPUT	84900	300.0 TO -275.0 VOLTS	
RF VOLTAGE OUTPUT	85600	-80 VOLTS PEAK PULSE OUTPUT TO +60 VOLTS	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADAR TRANSMITTER TEST SET	A2	7		312	9201

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADAR TRANSMITTER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
ATTENUATION	02800	0.5 TO 60 DB	+/-2 PCT
CURRENT,DC	14800	0 TO 100.0 MA	+/-2 PCT
DEGREES	16500	-15.0 TO +15.0 DEG	
VOLTAGE OUTPUT	84900	0 TO 20.0 VOLTS	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO COMMUNICATION ANTENNA TS	B2	7		324	9210

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO COMMUNICATION ANTENNA TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-400HZ	
CONDUCTANCE,(SIEMENS (S))	13600	0.01 TO 4000 MILOHMS	
DYNAMIC RANGE	22000	60DB MEASUREMENT RANGE	
FREQ RANGE	26500	15MHZ TO 18GHZ	
OHMS	35300	0 TO 300 MEGA OHMS	+/-2 PCT
POWER RANGE	56800	0 TO 500 MILLIVOLTS	+/-2 PCT
SENSITIVITY	63600	-50DB	
STANDING WAVE RATIO SWR	69600	VSWR 1.2 CAN BE MEASURED	
SUSCEPTANCE	69800	-4000 TO +4000 MILOHMS	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO COMMUNICATION MODEM/CODEC TS	83	7		325	9211

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO COMMUNICATION MODEM/CODEC TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ	
DEGREES	16500	0 TO 360	
FREQ MODULATION	26000	70MHZ	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO COMMUNICATION RECEIVER TS	81	7		323	9209

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO COMMUNICATION RECEIVER TS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60HZ	
FREQ MODULATION	26000	66MHZ TO 74MHZ	
FREQ RANGE	26500	0 TO 140MHZ	
POWER RANGE	56800	-20 TO 10DB	
PWR OUTPUT	57000	100UV TO 200MV	
VOLTAGE,AC	84000	3 TO 300MV	
VOLTAGE INPUT LEVEL	84130	100 TO 300UV	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO COMMUNICATION SYSTEM TEST SET	A8	7		321	9207

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIC COMMUNICATION SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-420HZ	
CURRENT,AC	14400	0 TC 30AMPS	
CURRENT,DC	14800	-100UA TO 10A	
DELAY PERIOD	16800	1NS AT 20MHZ DEVIATION	
DB LEVEL MEAS	16900	-20 TC +20DB	
FM DEVIATION	26020	20MHZ-LINEARITY IS +/-0.25 PCT	
FREQ RANGE	26500	455KHZ TO 8.5GHZ	
SIGNAL WAVEFORMS	50300	80HZ SWEEP, 304KHZ MEASURING SIG, COMBINED OUTPUTS	
PULSE WIDTH	56010	0.5 TC 25US	
POWER RANGE	56800	-85DB TC +15DB	
PWR OUTPUT	57000	1LV TC 300MV	
SIGNAL TO NOISE RATIO	66100	60DB	
VOLTAGE,AC	84000	0 TC 1KV	
VOLTAGE OUTPUT	84900	-5VDC AND 0 TO 500VDC, 3VAC	
WAVEFORM(S)	86800	AM/FM MODULATION, SQ WAVE, PULSE	
WAVEFORM DESCRIPTIONS	86810	1000HZ +/-10 PCT, 300HZ TO 10KHZ	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO COMMUNICATION TRANSMITTER TS	A9	7		322	9208

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIC COMMUNICATION TRANSMITTER TS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ	
CURRENT,DC	14800	0 TC 50AMPS	
DB LEVEL MEAS	16900	0 TC -20DB	
FREQ MEASUREMENTS	25600	2 TO 29.99MHZ	
FREQ RANGE	26500	1.5KHZ TO 1.73GHZ	+/-0.005
POWER RANGE	56800	-17DB TO 10DB	+/-5PCT
PWR OUTPUT	57000	0 TO 10WATTS	+/-5PCT
RESISTANCE MEASUREMENT	59600	0 TO 50 OHMS	+/-5PCT
STANDING WAVE RATIO SWR	69600	1.05 TO 3.0	
VOLTAGE,DC	84400	0 TC 50VDC	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO NAVIGATION ANTENNA TEST SET	88	7		334	9216

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIC NAVIGATION ANTENNA TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 400HZ	
ANALOG OUTPUT,VOLTAGE	02020	90 TC 140VOLTS	
DEGREES	16500	-90 TC +90	+/-0.1PCT
DB LEVEL MEAS	16900	0 TO 999DB	+/-0.01PCT
POWER RANGE	56800	5MW TC 100W	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO NAVIGATION DISPLAY TS	C2	7		337	9219

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIC NAVIGATION DISPLAY TS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60HZ	
CURRENT,AC	14400	0 TC 50MA	+/-2 PCT
CURRENT,DC	14800	0 TO 500A	+/-2 PCT
VOLTAGE,DC	84000	0 TC 30V	+/-2 PCT
EQUIPMENT NAME	00100	RADIO NAVIGATION RECEIVER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
CURRENT,DC	14800	0 TO 250MA	
DEGREES	16500	0 TO 359.9	+/-2 PCT
DB LEVEL MEAS	16900	2 TO 100DB	+/-0.2 PCT
FREQ MODULATION	26000	30 TC 125HZ	+/-2 PCT
FREQ RANGE	26500	90MHZ TO 1.213GHZ	
SIGNAL WAVEFORMS	50000	CW RF-ANY ONE OF 168 FREQ 962-1045MHZ 1130-1213MHZ	
	50001	+/-0.0005 AT 1MHZ INTERVALS +/-20DM TO -100+/-20DM	
	50002	MCD RF-MODULATED BY 15 AND 135HZ OR A PAIR OF 3.5US	
	50003	PULSES SPACED 12US APART NORTH REF BURST AT 15PPS	
	50004	AUXILIARY BURST AT 135PPS	
PWR OUTPUT	57000	RF 1V FIXED AND 0 TO 10000MV VAR DEMODULATED	
VOLTAGE,DC	84400	0 TO 300V	
VOLTAGE OUTPUT	84900	0 TC 75V	+/-2 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO NAVIGATION SYSTEM TEST SET	85	7		331	9213

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO NAVIGATION SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
CURRENT,DC	14800	0 TO 3MILLIAMPS	+/-2 PCT
DEGREES	16500	0 TO 360	
FREQ RANGE	26500	90KHZ TO 1.225GHZ	+/-2 PCT
OUTPUT,AUDIO	49200	250MW	
POWER RANGE	56800	10 TO 100WATTS	
PWR OUTPUT	57000	1WATT FOR ANTENNA TEST	
VOLTAGE,AC	84000	0 TO 125VOLTS	
VOLTAGE,DC	84400	225VDC AT 15MA AND 27.5VDC AT 50MA	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RADIO NAVIGATION TRANSMITTER TS	86	7		332	9214

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO NAVIGATION TRANSMITTER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60 TO 400HZ	
FREQ RANGE	26500	265 TO 535KHZ	
PWR OUTPUT	57000	10 TO 100WATTS	

SF ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
RELAY TEST SET	G3	7		115	9257

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RELAY TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-400HZ	
CURRENT,DC	14800	0 TO 750MA	
FREQ RANGE	26500	20HZ TO 125HZ	
SIGNAL WAVEFORMS	50000	10VAC AT 400HZ,0.5AMP AND 10 TO 28VDC,CONT VAR,1AMP	
PULSE RATE	56200	RANGE OF READOUT 6 TO 25PPS	
TEST PATTERNS	76000	5 SPEEDS 23,37,75,100 AND 125 DOT HZ	
VOLTAGE,DC	84400	0 TO 150VDC	+/-2 PCT
			+/-1 PCT

SF ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
SIGNAL GENERATOR COMB	F5	7		046	9250

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	SIGNAL GENERATOR COMB	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-400HZ	
MARKERS	41600	AT 1,10,100MHZ INCREMENTS TO 5GHZ	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
SIGNAL GENERATOR TWO-TONE	F6	7		048	9251

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	SIGNAL GENERATOR TWO-TONE	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-400HZ	
FREQ MODULATION	26000	0 TO 10KZ	
FREQ RANGE	26500	10HZ TO 30MHZ	
PWR OUTPUT	57000	1UV TO 1V	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
SIGNAL GENERATOR VARIABLE PHASE	F7	7		058	9252

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	SIGNAL GENERATOR VARIABLE PHASE	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-1000HZ	
FREQ RANGE	26500	0.005HZ TO 60KHZ	
PHASE DIFFERENCE-(DEGREES	53200	0 TO 360	+/-1 PCT
PWR OUTPUT	57000	0 TO 30V	
DIMENSIONS IN MM/INS	00110	44CM(163/4IN)WX16CM(6IN)HX40CM(15IN)D	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
SIGNAL GENERATOR, PULSE	04	7		315	9204

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
ENCLOSURE (STYLE)	00130	MIL-T-28800 STYLE W/RACK MOUNT CAPABILITY	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
SIGNAL GENERATOR, UHF A	15	7		333	9215

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
RF VOLTAGE OUTPUT	85600	RF NLT .5V RMS ACROSS 50 OHM LOAD	
VIBRATION LIMIT (MAXIMUM)	00240	2G	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
SIGNAL SIMULATORS TEST SET	D1	7		390	9228

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	SIGNAL SIMULATORS TEST SET	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
STRIP CHART RECORDER	F8	7		064	9253

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	STRIP CHART RECORDER	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 48-62HZ	
NUMBER OF CHANNELS	10100	12	
CHART PAPER SIZE	10400	30FT ROLL	
CHART SPEEDS	11600	20 FROM 0.1 TO 100CM/MIN	
CURRENT,AC	14400	0 TO 750A	
CURRENT,DC	14800	0 TO 10MA	
RF MOD DUE TO VIBRATION	26440	45HZ TO 425HZ	+/-1PCT
FREQ RANGE	26500	1HZ TO 4MHZ	
VOLTAGE,AC	84000	0 TO 750V	
VOLTAGE,DC	84400	0 TO 300V	+/-1PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
SUBASSEMBLY TEST SET	C3	7		340	9220

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	SUBASSEMBLY TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-1000HZ	
FREQ RANGE	26500	150 TO 168MHZ	+/-0.5PCT
VOLTAGE,AC	84000	100UV TO 120MV	+/-2PCT
VOLTAGE OUTPUT	84900	-6,-80,+12,+25,+28VDC	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
TELEPHONE TEST SET	E8	7		560	9244

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	TELEPHONE TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60HZ	
CAPACITANCE RANGE	08400	50UF TO 4MF	
CURRENT,DC	14800	-150MA TO 3.8AMPS	
FREQ MEASUREMENTS	25600	17 TO 22HZ	
FREQ RANGE	26500	0 TO 2.6KHZ W/BURST 40 TO 60MSEC DURATION	
OHMS	35300	0 TO 1.01MEGA	
POWER RANGE	56800	-70 TO +26DB	
VOLTAGE,DC	84400	0 TO 1KV	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
TRANSPONDER TEST SET	H1	7		318	9270

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	TRANSPONDER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-420HZ	
BANDWIDTH	05200	6.5MHZ	
CURRENT,DC	14800	0 TO 10AMPS	+/-5 PCT
DB LEVEL MEAS	16900	18 TO 33DB	+/-3.3 PCT
FREQ RANGE	26500	5KHZ TO 1090MHZ	
OUTPUT POWER	35100	XPTR -90DBM	
SIGNAL WAVEFORMS	50000	RANGE SIMULATION PULSE 5V MIN, 100NS RISE TIME 450NS	
	50001	WIDTH, FIXED RATE OF CHANGE 0 TO 2000FPS, VARIABLE RATE	
	50002	OF CHANGE 0-100 OR 0-1000FPS, VIDEO PULSE 0 TO +/-5V	
SX,PULSE RISE TIME	56030	15NS	
EX, PULSE POLARITY & VOLT	56060	0 TO 5 VOLTS MIN	
SX, PULSE DELAY	56090	0 TO 550 NS	
PULSE RATE	56200	0 TO 10KPPS	
VOLTAGE,AC	84000	0 TO 200VAC	
VOLTAGE,DC	84400	0 TO 400VDC	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
WEAPON MISSILE TEST SET	C7	7		381	9225

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	WEAPON MISSILE TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-420HZ	
CURRENT,DC	14800	0 TO 15AMPS	
DEGREES	16500	0 TO 60	+/-0.1 PCT
DB LEVEL MEAS	16900	0 TO 100DB	
FREQ RANGE	26500	100MILLIHZ TO 1GHZ	
SIGNAL WAVEFORMS	50000	ALFA,NUMERIC,SPECIAL CHARACTER FORMAT	
RESISTANCE MEASUREMENT	59600	1K TO 10MEGA	
TIME INTERVAL MEASUREMENT	78000	0.01MS TO 10SEC	
VOLTAGE,AC	84000	0 TO 300VAC	
VOLTAGE,DC	84400	0 TO 10KV	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
WEAPONS CONVENTIONAL TEST SET	C8	7		382	9226

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	WEAPONS CONVENTIONAL TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
CURRENT,DC	14800	0 TO 10AMPS	
DEGREES	16500	0 TO 359	+/-1 PCT
FREQ RANGE	26500	50HZ TO 1.5KHZ	+/-1 PCT
RESISTANCE MEASUREMENT	59600	0 TO 1GIGA	+/-3 PCT
TIME INTERVAL MEASUREMENT	78000	10MS TO 9.99SEC	
VOLTAGE,AC	84000	0 TO 30V	
VOLTAGE,DC	84400	0 TO 1000V	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
WEAPONS NUCLEAR TEST SET	C9	7		383	9227

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	WEAPONS NUCLEAR TEST SET	

SP ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMDE ID NO
WORD GENERATOR	G1	7		083	9255

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	MCRO GENERATOR	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 48-440HZ	
BAUD RATE	05600	45.5 TO 9600	
DATA SIGNAL	15200	16-BIT WORD VARIABLE PATTERNS	
FREQ RANGE	26500	10HZ TO 10MHZ	
SIGNAL WAVEFORMS	50000	-15 TO 415V	
PULSE WIDTH	56010	5U TO 50U SEC	
PWR OUTPUT	57000	9.5V	

APPENDIX F

SELECTED SPECIAL PURPOSE TMDE

Computer printouts of the 20 special purpose TMDE selected for detailed study are reproduced on the following pages.

SP TMDE Type Designator Sequence

Type Designator	Nomenclature	LIN	Family Code	End Item Supported
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANARM45A	T S RADIO	V86784	321	ANARC73
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR
ANARM928	T S RADIO	V90287	332	ANARN82A
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANASM113	SIMULATOR NAVIGATIONAL SIGNAL	T56676	513	ANASN33
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS
ANGPM46A	T S RADAR	V83917	311	ANAPS948&C
ANGRM33C	T S RADIO	V87547	321	SSB RADIO
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
ANURM157A	TEST HARDNESS RADIC SET	V62066	321	ANARC102
TS147CUP	T S RADAR	V85150	311	RADAR SYSTEMS
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSONDE XMTR

SP TMDE Family Code Sequence

Type Designator	Nomenclature	LIN	Family Code	End Item Supported
ANGPM46A	T S RADAR	V83917	311	ANAPS948&C
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
TS147CUP	T S RADAR	V85150	311	RADAR SYSTEMS
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44
ANARM45A	T S RADIO	V86784	321	ANARC73
ANURM157A	TEST HARDNESS RADIO SET	V62066	321	ANARC102
ANGRM33C	T S RADIO	V87547	321	SSB RADIO
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSONDE XMTR
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANARM928	T S RADIO	V90287	332	ANARN82A
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANASM113	SIMULATOR NAVIGATIONAL SIGNAL	T56676	513	ANASN33
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS

LIN Sequence

Type Designator	Nomenclature	LIN	Family Code	End Item Supported
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANASM113	SIMULATOR NAVIGATIONAL SIGNAL	T56676	513	ANASN33
ANURM157A	TEST HARDNESS RADIC SET	V62066	321	ANARC102
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANGPM46A	T S RADAR	V83917	311	ANAPS94B&C
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
TS147DUP	T S RADAR	V85150	311	RADAR SYSTEMS
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR
ANARM45A	T S RADIO	V86784	321	ANARC73
ANGRM33C	T S RADIO	V87547	321	SSB RACIO
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSONDE XMTR
ANARM92B	T S RADIO	V90287	332	ANARN82A
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44

End Item Supported Sequence

Type Designator	Nomenclature	LIN	Family Code	End Item Supported
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANGPM46A	T S RADAR	V83917	311	ANAPS94B&C
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44
ANURM157A	TEST HARDNESS RADIC SET	V62066	321	ANARC102
ANARM45A	T S RADIO	V86784	321	ANARC73
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANASM113	SIMULATOR NAVIGATIONAL SIGNAL	T56676	513	ANASN33
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANARM92B	T S RADIO	V90287	332	ANARN82A
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
TS147DUP	T S RADAR	V85150	311	RADAR SYSTEMS
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSONDE XMTR
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANGRM33C	T S RADIO	V87547	321	SSB RACIO
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR